

## ABSTRACTS

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## 2. LBP

### Psychological distress and LBP

*Arch Phys Med Rehabil.* 2016 Sep;97(9):1573-87. doi: 10.1016/j.apmr.2016.02.004. Epub 2016 Feb 26.

#### **Psychological Distress in Acute Low Back Pain: A Review of Measurement Scales and Levels of Distress Reported in the First 2 Months After Pain Onset.**

Shaw WS<sup>1</sup>, Hartvigsen J<sup>2</sup>, Woisztillo MJ<sup>3</sup>, Linton SJ<sup>4</sup>, Reme SE<sup>5</sup>.

#### **Author information**

#### **Abstract**

#### **OBJECTIVE:**

To characterize the measurement scales and levels of psychological distress reported among published studies of acute low back pain (LBP) in the scientific literature.

#### **DATA SOURCES:**

Peer-reviewed scientific literature found in 8 citation index search engines (CINAHL, Embase, MANTIS, PsycINFO, PubMed, Web of Science, AMED, and Academic Search Premier) for the period from January 1, 1966, to April 30, 2015, in English, Danish, Norwegian, and Swedish languages.

#### **STUDY SELECTION:**

Cross-sectional, case-control, cohort, or randomized controlled trials assessing psychological distress and including participants drawn from patients and workers (or an identifiable subset) with acute LBP (<8wk). Three researchers independently screened titles, abstracts, and full-length articles to identify peer-reviewed studies according to established eligibility criteria.

#### **DATA EXTRACTION:**

Descriptive data (study populations, definitions of LBP, distress measures) were systematically extracted and reviewed for risk of bias. Distress measures were described, and data were pooled in cases of identical measures. Reported levels of distress were contextualized using available population norms, clinical comparison groups, and established clinical cutoff scores.

#### **DATA SYNTHESIS:**

Of 10,876 unique records, 23 articles (17 studies) were included. The most common measures were the Beck Depression Inventory, the modified version of the Zung Self-Rated Depression Scale, the Center for Epidemiologic Studies-Depression Scale, and the Medical Outcomes Study 12-Item Short-Form Health Survey and Medical Outcomes Study 36-Item Short-Form Health Survey. Pooled results for these scales showed consistent elevations in depression, but not anxiety, and reduced mental health status in comparison with the general population.

#### **CONCLUSIONS:**

Based on the high consistency across studies using valid measures with a low to moderate risk of bias, there is strong evidence that psychological distress is elevated in acute LBP.

## RNA and LBP

*Spine (Phila Pa 1976)*. 2017 Feb 15;42(4):E226-E233. doi: 10.1097/BRS.0000000000001763.

**Expression of miRNA-124a in CD4 Cells Reflects Response to a Multidisciplinary Treatment Program in Patients With Chronic Low Back Pain.**

Luchting B<sup>1</sup>, Heyn J, Hinske LC, Azad SC.

**Author information****Abstract****STUDY DESIGN:**

A prospective evaluation of microRNA (miRNA) expression in patients with chronic low back pain (CLBP).

**OBJECTIVE:**

The aim of this study was to evaluate whether pain- and T cell-related miRNAs are differentially expressed in CLBP when compared with healthy volunteers and whether these miRNAs may distinguish between responders and nonresponders to a multidisciplinary treatment program.

**SUMMARY OF BACKGROUND DATA:**

CLBP is a common health problem worldwide. Multidisciplinary pain treatment programs have been proven as an effective treatment option. miRNAs are known to be important mediators of gene regulation in various processes, including pathophysiology of pain. The expression of miRNAs in CLBP and changes due to a multidisciplinary treatment programs are still unknown.

**METHODS:**

Thirty-four patients with CLBP were enrolled ( $46.5 \pm 12.7$  yrs). CLBP was defined as low back pain with an average intensity of numerical rating scale (NRS)  $\geq 3$  during the last 4 weeks, persisting longer than 6 months, and not attributable to a recognized specific pathological condition. Expression of pain- and T cell-related miRNAs in human CD4 cells were determined using TaqMan assays and RealTime PCR. MiRNA expression in patients with CLBP was compared with the expression in healthy volunteers before a multidisciplinary treatment program started. The multidisciplinary outpatient program (4 weeks, 5 days a week, 8 h per day) is a clinically established outpatient program and comprises medical (examination, education), physical (exercise), work-related, and psychological therapy components. After the program, differentially expressed miRNAs in CLBP (before treatment) were analyzed once more. Expression of these miRNAs in patients who respond to the treatment ( $n=14$ ) was compared with those who did not respond ( $n=20$ ). Response to therapy was defined as reduction of pain of  $\geq 50\%$  (NRS) from baseline.

**RESULTS:**

MiRNA-124a (patients:  $0.79 \pm 0.63$  vs. healthy volunteers:  $0.30 \pm 0.16$ ;  $P < 0.001$ ), miRNA-150 (patients:  $0.75 \pm 0.21$  vs. healthy volunteers:  $0.56 \pm 0.20$ ;  $P = 0.025$ ), and miRNA-155 (patients:  $0.55 \pm 0.14$  vs. healthy volunteers:  $0.38 \pm 0.16$ ;  $P = 0.017$ ) were significantly upregulated in CLBP patients when compared with healthy volunteers. After the multidisciplinary treatment program, patients who respond to the treatment showed only an increase of miRNA-124a expression (before treatment:  $0.54 \pm 0.26$  vs. after treatment:  $1.05 \pm 0.56$ ,  $P = 0.007$ ).

**CONCLUSION:**

MiRNA-124a upregulation is associated with therapy response in a multidisciplinary treatment programs and might help to identify more specific and mechanism-based treatment strategies for CLBP.

**AS muscle volume reduced**

*Eur Spine J.* 2017 Feb;26(2):528-537. doi: 10.1007/s00586-016-4889-2. Epub 2016 Nov 24.

**Comparison of MRI-defined back muscles volume between patients with ankylosing spondylitis and control patients with chronic back pain: age and spinopelvic alignment matched study.**

Bok DH<sup>1</sup>, Kim J<sup>2</sup>, Kim TH<sup>3</sup>.

Author information

Abstract

**PURPOSE:**

To compare MRI-defined back muscle volume between AS patients and age, and spinopelvic alignment matched control patients with chronic back pain.

**METHODS:**

51 male patients with AS were enrolled. Age and spinopelvic alignment matched controls (male) were found among non-AS patients with chronic back pain. After matching procedure, fully matched controls were found in 31 of 51 AS patients (60.8%), who represent AS patients without deformity. However, matched controls were not found in 20 of 51 AS patients (39.2%), who represent AS patients with deformity. MRI parameters of back muscle (paraspinal muscle and psoas muscle) at L4/5 disc level including cross-sectional area (CSA) and fat-free cross-sectional area (FCSA) were compared between AS patients and matched controls. Covariates, including BMI, self-reported physical activity, and the presence of chronic disease, which can influence back muscle volume, were also investigated.

**RESULTS:**

There were no statistical differences in age, body mass index, score of back pain (NRS), and spinopelvic alignment, and physical activity between matched AS patients and control patients except for duration of back pain. All MRI parameters for paraspinal muscle volume in matched AS patients (without deformity) were significantly less than those of control patients, and significantly larger than those of non-matched AS patients (with deformity). Body size adjusted MRI parameters (relative CSA and relative FCSA) of paraspinal muscle showed strong correlations with lumbar lordosis and sacral slope. Such relationship between paraspinal muscle and spinopelvic parameters remained significant even after multivariate adjustment.

**CONCLUSIONS:**

AS patients without deformity already have decreased paraspinal muscle volume compared with age and spinopelvic alignment matched non-AS patients with chronic back pain. Such decrease in paraspinal muscle volume was significantly associated with kyphotic deformity of AS patients even after multivariate adjustment. Although the result of our study supports the causal relationship between muscle degeneration and kyphotic deformity in AS patients, further study is required to prove the causality.



## 7. PELVIC ORGANS/WOMAN'S HEALTH

### PMS zinc sulfate

J Obstet Gynaecol Res. 2017 Feb 11. doi: 10.1111/jog.13299.

#### **Effect of zinc sulfate supplementation on premenstrual syndrome and health-related quality of life: Clinical randomized controlled trial.**

Siahbazi S<sup>1,2</sup>, Behboudi-Gandevani S<sup>3</sup>, Moghaddam-Banaem L<sup>2</sup>, Montazeri A<sup>4</sup>.

#### Author information

#### Abstract

#### *AIM:*

The purpose of study was to assess the effect of zinc sulfate (ZS) supplementation on premenstrual syndrome (PMS) and health-related quality of life (QoL).

#### *METHODS:*

This was a double-blind randomized and placebo-controlled trial using the parallel technique conducted between June 2013 and May 2014. A total of 142 women (age, 20-35 years) with PMS were allocated to either the ZS or placebo group. The women in the intervention group received ZS 220-mg capsules (containing 50 mg elemental zinc) from the 16th day of the menstrual cycle to the second day of the next cycle. Data were collected using the Premenstrual Symptoms Screening Tool (PSST) and 12-item Short-Form Health Survey Questionnaire.

#### *RESULT:*

The prevalence of moderate to severe PMS in the ZS group significantly decreased throughout the study period (9.5% in the first, 6% in the second and 2.6% in the third month of the study,  $P < 0.001$ ), but in the control placebo group this reduction was seen only in the first month of the study (14.2% in the first, 13.7% in the second and 13.5% in the third month,  $P = 0.08$ ). Also, ZS improved the PSST component scores throughout the study period. The mean scores of QoL in physical and mental components were significantly improved in the ZS intervention group. However, the differences were statistically significant only 3 months after the intervention.

#### *CONCLUSION:*

Zinc sulfate, as a simple and inexpensive treatment, was associated with improvement of PMS symptoms and health-related QoL. Additional studies are warranted to confirm these findings.

**IBS and reproduction**

*World J Gastroenterol.* 2014 Jun 21; 20(23): 7123–7136. Published online 2014 Jun 21. doi: [10.3748/wjg.v20.i23.7123](https://doi.org/10.3748/wjg.v20.i23.7123) PMID: PMC4064059

**Inflammatory bowel diseases and human reproduction: A comprehensive evidence-based review**

Stefano Palomba, Giuliana Sereni, Angela Falbo, Marina Beltrami, Silvia Lombardini, Maria Chiara Boni, Giovanni Fornaciari, Romano Sassatelli, and Giovanni Battista La Sala

To evaluate the effects of inflammatory bowel diseases (IBDs) on human reproduction, we reviewed the current literature using a systematic search for published studies (articles and/or abstracts) without limits for English language.

We searched on Medline (through PubMed), the Institute for Scientific Information, the Web of Science and the websites for the registration of controlled trials (<http://controlled-trials.com/>). Bibliographies of retrieved articles, books, expert opinion review articles and reviewed bibliographies from subject experts were manually searched. Titles and abstracts were screened initially, and potential relevant articles were identified and reviewed. Whenever possible, data were analyzed by comparing IBD patients *vs* healthy controls, and patients with active IBDs *vs* those with disease in remission. The effects of IBDs on female fertility, fertility in infertile couples, pregnancy and male infertility were examined separately. Patients with IBDs in remission have normal fertility. At the moment, there is no established guideline for the preservation of fertility in women with IBD undergoing surgery. Further data are needed regarding guidelines for the management of these patients. Data regarding IBDs and infertility are currently completely lacking. Considering the prevalence of intestinal pathology in young adults of childbearing age, this field is of great scientific and clinical interest, opening up important future perspectives. Another important and as yet unexplored point is the response to treatments for infertility in patients with IBDs. In particular, the question is whether the reproductive outcomes (clinical and biological) can be influenced by the IBD of one of the partners.

The goals for successful reproductive outcomes in IBD population are correct counseling and disease remission. IBDs significantly affect several reproductive aspects of human (female, male, couple) reproduction. Further data are needed to develop guidelines for the clinical management of subjects of reproductive age with IBDs.

**Core tip:** The current comprehensive evidence-based review evaluated the most recent data regarding the effects of inflammatory bowel diseases on human reproduction.

## 8. VISCERA

### Probiotics and appetite

*Am J Clin Nutr.* 2017 Feb 22. pii: ajcn140947. doi: 10.3945/ajcn.116.140947.

#### **Prebiotic supplementation improves appetite control in children with overweight and obesity: a randomized controlled trial.**

Hume MP<sup>1</sup>, Nicolucci AC<sup>1</sup>, Reimer RA<sup>2,3</sup>.

##### Author information

##### Abstract

Background: Prebiotics have been shown to improve satiety in adults with overweight and obesity; however, studies in children are limited.

Objective: We examined the effects of prebiotic supplementation on appetite control and energy intake in children with overweight and obesity.

Design: This study was a randomized, double-blind, placebo-controlled trial. Forty-two boys and girls, ages 7-12 y, with a body mass index (BMI) of  $\geq 85$ th percentile were randomly assigned to 8 g oligofructose-enriched inulin/d or placebo (maltodextrin) for 16 wk. Objective measures of appetite included energy intake at an ad libitum breakfast buffet, 3-d food records, and fasting satiety hormone concentrations. Subjective appetite ratings were obtained from visual analog scales before and after the breakfast. Children's Eating Behavior Questionnaires were also completed by caregivers.

Results: Compared with placebo, prebiotic intake resulted in significantly higher feelings of fullness ( $P = 0.04$ ) and lower prospective food consumption ( $P = 0.03$ ) at the breakfast buffet at 16 wk compared with baseline. Compared with placebo, prebiotic supplementation significantly reduced energy intake at the week 16 breakfast buffet in 11- and 12-y-olds ( $P = 0.04$ ) but not in 7- to 10-y-olds. Fasting adiponectin ( $P = 0.04$ ) and ghrelin ( $P = 0.03$ ) increased at 16 wk with the prebiotic compared with placebo. In intent-to-treat analysis, there was a trend for prebiotic supplementation to reduce BMI z score to a greater extent than placebo ( $-3.4\%$ ;  $P = 0.09$ ) and a significant  $-3.8\%$  reduction in per-protocol analysis ( $P = 0.043$ ).

Conclusions: Independent of other lifestyle changes, prebiotic supplementation in children with overweight and obesity improved subjective appetite ratings. This translated into reduced energy intake in a breakfast buffet in older but not in younger children. This simple dietary change has the potential to help with appetite regulation in children with obesity. This trial was registered at

## Vitamin D helps respiratory infection

BMJ. 2017 Feb 15;356:i6583. doi: 10.1136/bmj.i6583.

**Vitamin D supplementation to prevent acute respiratory tract infections: systematic review and meta-analysis of individual participant data.**

Martineau AR<sup>1,2</sup>, Jolliffe DA<sup>3</sup>, Hooper RL<sup>3</sup>, Greenberg L<sup>3</sup>, Aloia JF<sup>4</sup>, Bergman P<sup>5</sup>, Dubnov-Raz G<sup>6</sup>, Esposito S<sup>7</sup>, Ganmaa D<sup>8</sup>, Ginde AA<sup>9</sup>, Goodall EC<sup>10</sup>, Grant CC<sup>11</sup>, Griffiths CJ<sup>3,2,12</sup>, Janssens W<sup>13</sup>, Laaksi I<sup>14</sup>, Manaseki-Holland S<sup>15</sup>, Mauger D<sup>16</sup>, Murdoch DR<sup>17</sup>, Neale R<sup>18</sup>, Rees JR<sup>19</sup>, Simpson S Jr<sup>20</sup>, Stelmach I<sup>21</sup>, Kumar GT<sup>22</sup>, Urashima M<sup>23</sup>, Camargo CA Jr<sup>24</sup>.

Author information

Abstract

**Objectives** To assess the overall effect of vitamin D supplementation on risk of acute respiratory tract infection, and to identify factors modifying this effect.

**Design** Systematic review and meta-analysis of individual participant data (IPD) from randomised controlled trials.

**Data sources** Medline, Embase, the Cochrane Central Register of Controlled Trials, Web of Science, ClinicalTrials.gov, and the International Standard Randomised Controlled Trials Number registry from inception to December 2015.

**Eligibility criteria for study selection** Randomised, double blind, placebo controlled trials of supplementation with vitamin D<sub>3</sub> or vitamin D<sub>2</sub> of any duration were eligible for inclusion if they had been approved by a research ethics committee and if data on incidence of acute respiratory tract infection were collected prospectively and prespecified as an efficacy outcome.

**Results** 25 eligible randomised controlled trials (total 11 321 participants, aged 0 to 95 years) were identified. IPD were obtained for 10 933 (96.6%) participants. Vitamin D supplementation reduced the risk of acute respiratory tract infection among all participants (adjusted odds ratio 0.88, 95% confidence interval 0.81 to 0.96; P for heterogeneity <0.001). In subgroup analysis, protective effects were seen in those receiving daily or weekly vitamin D without additional bolus doses (adjusted odds ratio 0.81, 0.72 to 0.91) but not in those receiving one or more bolus doses (adjusted odds ratio 0.97, 0.86 to 1.10; P for interaction=0.05). Among those receiving daily or weekly vitamin D, protective effects were stronger in those with baseline 25-hydroxyvitamin D levels <25 nmol/L (adjusted odds ratio 0.30, 0.17 to 0.53) than in those with baseline 25-hydroxyvitamin D levels ≥25 nmol/L (adjusted odds ratio 0.75, 0.60 to 0.95; P for interaction=0.006). Vitamin D did not influence the proportion of participants experiencing at least one serious adverse event (adjusted odds ratio 0.98, 0.80 to 1.20, P=0.83). The body of evidence contributing to these analyses was assessed as being of high quality.

**Conclusions** Vitamin D supplementation was safe and it protected against acute respiratory tract infection overall. Patients who were very vitamin D deficient and those not receiving bolus doses experienced the most benefit. **Systematic review registration** PROSPERO CRD42014013953

**Vegetable intake decreased COPD**

Thorax. 2017 Feb 22. pii: thoraxjnl-2015-207851. doi: 10.1136/thoraxjnl-2015-207851

**Fruit and vegetable consumption and risk of COPD: a prospective cohort study of men.**

Kaluza J<sup>1,2</sup>, Larsson SC<sup>1</sup>, Orsini N<sup>1</sup>, Linden A<sup>3</sup>, Wolk A<sup>1</sup>.

Author information

Abstract

**BACKGROUND:**

Antioxidants present in fruits and vegetables may protect the lung from oxidative damage and prevent COPD.

**AIMS:**

To determine the association between fruit and vegetable consumption and risk of COPD by smoking status in men.

**METHODS:**

The population-based prospective Cohort of Swedish Men included 44 335 men, aged 45-79 years, with no history of COPD at baseline. Fruit and vegetable consumption was assessed with a self-administered questionnaire.

**RESULTS:**

During a mean follow-up of 13.2 years, 1918 incident cases of COPD were ascertained. A strong inverse association between total fruit and vegetable consumption and COPD was observed in smokers but not in never-smokers (p-interaction=0.02). The age-standardised incidence rate per 100 000 person-years in the lowest quintile (<2 servings/day) of total fruit and vegetable consumption was 1166 in current smokers and 506 in ex-smokers; among those in the highest quintile (≥5.3 servings/day), 546 and 255 per 100 000 person-years, respectively. The multivariable HR of COPD comparing extreme quintiles of total fruit and vegetable consumption was 0.60 (95% CI 0.47 to 0.76, p-trend <0.0001) in current smokers and 0.66 (95% CI 0.51 to 0.85, p-trend=0.001) in ex-smokers. Each one serving per day increment in total fruit and vegetable consumption decreased risk of COPD significantly by 8% (95% CI 4% to 11%) in current smokers and by 4% (95% CI 0% to 7%) in ex-smokers.

**CONCLUSIONS:**

These results indicate that high consumption of fruits and vegetables is associated with reduced COPD incidence in both current and ex-smokers but not in never-smokers

## Probiotics helps depression

### **The effects of probiotics on depressive symptoms in humans: A systematic review**

Annals of General Psychiatry, 02/22/2017

**W**allace CJK, et al.

This systematic review aimed to examine the current body of research assessing the effects of probiotics, on symptoms of depression in humans. The evidence for probiotics alleviating depressive symptoms is compelling but additional double-blind randomized control trials in clinical populations are warranted to further assess efficacy.

#### **Methods**

- A systematic search of 5 databases was performed and study selection was finished utilizing the preferred reporting items for systematic reviews and meta-analyses process.

#### **Results**

- 10 studies met criteria and were analyzed for effects on mood, anxiety, and cognition.
- 5 studies assessed mood symptoms, 7 studies assessed anxiety symptoms, and 3 studies assessed cognition.
- Positive results were found in the majority of the studies on all measures of depressive symptoms; however, the strain of probiotic, the dosing, and duration of treatment varied widely and no studies assessed sleep.

**Weight and morbidity**

J Am Geriatr Soc. 2017 Feb 23. doi: 10.1111/jgs.14790.

**Body Mass Index, Waist Circumference, and Mortality in a Large Multiethnic Postmenopausal Cohort-Results from the Women's Health Initiative.**

Chen Z<sup>1</sup>, Klimentidis YC<sup>1</sup>, Bea JW<sup>2</sup>, Ernst KC<sup>1</sup>, Hu C<sup>1</sup>, Jackson R<sup>3</sup>, Thomson CA<sup>2</sup>.

Author information

Abstract

**OBJECTIVES:**

To determine whether the relationship between anthropometric measurements of obesity and mortality varies according to age, race, and ethnicity in older women.

**DESIGN:**

Prospective cohort study of multiethnic postmenopausal women.

**SETTING:**

Women's Health Initiative (WHI) observational study and clinical trials in 40 clinics.

**PARTICIPANTS:**

Postmenopausal women aged 50-79 participating in WHI (N = 161,808).

**MEASUREMENTS:**

Baseline height, weight, and waist circumference (WC) were measured, and body mass index (BMI) was calculated based on height and weight. Demographic, health, and lifestyle data from a baseline questionnaire were used as covariates. The outcome was adjudicated death (n = 18,320) during a mean follow-up of  $11.4 \pm 3.2$  years.

**RESULTS:**

Hazard ratios (HRs) and 95% confidence intervals (95% CIs) indicated that ethnicity and age modified ( $P < .01$ ) the relationship between obesity and mortality. Underweight was associated with higher mortality, but overweight or slight obesity was not a risk factor for mortality in most ethnic groups except for Hispanic women in the obesity I category (HR = 1.42, 95% CI = 1.04-1.95). BMI was not or was only weakly associated with mortality in individuals aged 70-79 (HR = 0.90, 95% CI = 0.85-0.95 for overweight; HR = 0.98, 95% CI = 0.92-1.06 for obese I; HR = 1.11, 95% CI = 1.00-1.23 for obese II; HR = 1.08, 95% CI = 0.92-1.26 for obese III). In contrast, higher central obesity measured using WC was consistently associated with higher mortality in all groups.

**CONCLUSION:**

Underweight is a significant risk factor for mortality in older women, and healthy BMI ranges may need to be specific for age, race, and ethnicity. The findings support a consistent relationship between central obesity and mortality.

**Mesh and hernia**

Hernia. 2017 Feb 18. doi: 10.1007/s10029-017-1590-2.

**Comparison of mesh fixation and non-fixation in laparoscopic totally extraperitoneal inguinal hernia repair.**

Buyukasik K<sup>1</sup>, Ari A<sup>2</sup>, Akce B<sup>2</sup>, Tatar C<sup>2</sup>, Segmen O<sup>2</sup>, Bektas H<sup>2</sup>.

Author information

Abstract

**PURPOSE:**

The purpose of this study was to compare laparoscopic total extraperitoneal (TEP) hernia repair procedures with or without mesh fixation for non-recurrent inguinal hernia.

**METHODS:**

100 male patients with non-recurrent inguinal hernia (62 unilateral and 38 bilateral) were included in the study. The patients were randomly assigned to either the mesh fixation group (n = 50) or the mesh non-fixation group (n = 50). The operative and follow-up data of the two groups were analyzed and compared in terms of recurrence rates, postoperative pain, length of hospital stay, and postoperative changes in testicular arterial blood flow.

**RESULTS:**

Pain scores were significantly higher in the mesh fixation group prior to discharge and at the 1st postoperative month (p = 0.034 and 0.001, respectively). Necessity to use narcotic analgesics was higher in the fixation group prior to discharge (p = 0.025). Urinary retention was significantly more frequent in the fixation group than in the non-fixation group. (p = 0.007). The mean operative time and length of hospital stay were similar in both groups. Preoperative and postoperative measurements of testicular arterial blood flow showed a substantial but not statistically significant difference for the frequency of impairment (14.2% in the fixation group and 5.8% in the non-fixation group) (p = 0.176). At long-term follow-up, no recurrence and no nerve injury were determined.

**CONCLUSION:**

Fixation of the mesh to the abdominal wall has been associated with various postoperative complications for no additional benefit in lowering recurrence rates. For non-recurrent inguinal hernia, non-fixation of the mesh is safe and reliable. Further studies with larger sample sizes are necessary for subgroup analyses.



**Cost of non-operative appendicitis/**

*J Pediatr Surg.* 2017 Jan 30. pii: S0022-3468(17)30083-0. doi: 10.1016/j.jpedsurg.2017.01.050.

**Cost analysis of nonoperative management of acute appendicitis in children.**

Mudri M<sup>1</sup>, Coriolano K<sup>2</sup>, Bütter A<sup>3</sup>.

Author information

Abstract

**PURPOSE:**

The purpose of this study was to determine if nonoperative management of acute appendicitis in children is more cost effective than appendectomy.

**METHODS:**

A retrospective review of children (6-17years) with acute appendicitis treated nonoperatively (NOM) from May 2012 to May 2015 was compared to similar patients treated with laparoscopic appendectomy (OM) (IRB#107535). Inclusion criteria included symptoms  $\leq$ 48h, localized peritonitis, and ultrasound confirmation of acute appendicitis. Variables analyzed included failure rates, complications, length of stay (LOS), and cost analysis.

**RESULTS:**

26 NOM patients (30% female, mean age 12) and 26 OM patients (73% female, mean age 11) had similar median initial LOS (24.5h (NOM) vs 16.5h (OM),  $p=0.076$ ). Median total LOS was significantly longer in the NOM group (34.5h (NOM) vs 17.5 (OM),  $p=0.01$ ). Median cost of appendectomy was \$1416.14 (range \$781.24-\$2729.97). 9/26 (35%) NOM patients underwent appendectomy for recurrent appendicitis. 4/26 (15%) OM patients were readmitted (postoperative abscess (n=2), Clostridium difficile colitis (n=1), postoperative nausea/vomiting (n=1)). Median initial hospital admission costs were significantly higher in the OM group (\$3502.70 (OM) vs \$1870.37 (NOM),  $p=0.004$ ). However, median total hospital costs were similar for both groups (\$3708.68 (OM) vs \$2698.99 (NOM),  $p=0.065$ ).

**CONCLUSION:**

Although initial costs were significantly less in children with acute appendicitis managed nonoperatively, total costs were similar for both groups. The high failure rate of nonoperative management in this series contributed to the total increased cost in the NOM group.

**CV risk in arthritic patients**

Ann Rheum Dis. 2017 Feb 20. pii: annrheumdis-2016-210275. doi: 10.1136/annrheumdis-2016-210275.

**Incident myocardial infarction associated with major types of arthritis in the general population: a systematic review and meta-analysis.**

Schieir O<sup>1</sup>, Tosevski C<sup>2</sup>, Glazier RH<sup>3</sup>, Hogg-Johnson S<sup>4</sup>, Badley EM<sup>1,5</sup>.

Author information

## Abstract

**OBJECTIVE:**

To synthesise, quantify and compare risks for incident myocardial infarction (MI) across five major types of arthritis in population-based studies.

**METHODS:**

A systematic search was performed in MEDLINE, EMBASE and CINAHL databases with additional manual/hand searches for population-based cohort or case-control studies published in English or French between January 1980 and January 2015 with a measure of effect and variance for associations between incident MI and five major types of arthritis: rheumatoid arthritis (RA), psoriatic arthritis (PsA), ankylosing spondylitis (AS), gout or osteoarthritis (OA), adjusted for at least age and sex. All search screening, data abstraction quality appraisals were performed independently by two reviewers. Where appropriate, random-effects meta-analysis was used to pool results from studies with a minimum of 10 events.

**RESULTS:**

We identified a total of 4, 285 articles; 27 met review criteria and 25 criteria for meta-analyses. In studies adjusting for age and sex, MI risk was significantly increased in RA (pooled relative risk (RR): 1.69, 95% CI 1.50 to 1.90), gout (pooled RR: 1.47, 95% CI 1.24 to 1.73), PsA (pooled RR: 1.41, 95% CI 1.17 to 1.69), OA (pooled RR: 1.31, 95% CI 1.01 to 1.71) and tended towards increased risk in AS (pooled RR: 1.24, 95% CI 0.93 to 1.65). Traditional risk factors were more prevalent in all types of arthritis. MI risk was attenuated for each type of arthritis in studies adjusting for traditional risk factors and remained significantly increased in RA, PsA and gout.

**CONCLUSIONS:**

MI risk was consistently increased in multiple types of arthritis in population-based studies, and was partially explained by a higher prevalence of traditional risk factors in all types of arthritis. Findings support more integrated cardiovascular (CV) prevention strategies for arthritis populations that target both reducing inflammation and enhancing management of traditional CV risk factors.

**Gluten and villus**

*Aliment Pharmacol Ther.* 2017 Feb 20. doi: 10.1111/apt.13988.

**Factors associated with villus atrophy in symptomatic coeliac disease patients on a gluten-free diet.**

Mahadev S<sup>1</sup>, Murray JA<sup>2</sup>, Wu TT<sup>3</sup>, Chandan VS<sup>3</sup>, Torbenson MS<sup>3</sup>, Kelly CP<sup>4</sup>, Maki M<sup>5</sup>, Green PH<sup>1</sup>, Adelman D<sup>6</sup>, Lebwohl B<sup>1</sup>.

Author information

## Abstract

**BACKGROUND:**

Duodenal injury persists in some coeliac disease patients despite gluten-free diet, and is associated with adverse outcomes.

**AIM:**

To determine the prevalence and clinical risk factors for persistent villus atrophy among symptomatic coeliac disease patients.

**METHODS:**

A nested cross-sectional analysis was performed on coeliac disease patients with self-reported moderate or severe symptoms while following a gluten-free diet, who underwent protocol-mandated duodenal biopsy upon enrolment in the CeliAction clinical trial. Demographic factors, symptom type, medication use, and serology were examined to determine predictors of persistent villus atrophy.

**RESULTS:**

Of 1345 symptomatic patients, 511 (38%, 95% CI, 35-41%) were found to have active coeliac disease with persistent villus atrophy, defined as average villus height to crypt depth ratio  $\leq 2.0$ . On multivariable analysis, older age (OR, 5.1 for  $\geq 70$  vs. 18-29 years, 95% CI, 2.5-10.4) was a risk factor while longer duration on gluten-free diet was protective (OR, 0.37, 95% CI, 0.24-0.55 for 4-5.9 vs. 1-1.9 years). Villus atrophy was associated with use of proton-pump inhibitors (PPIs; OR, 1.6, 95% CI, 1.1-2.3), non-steroidal anti-inflammatory drugs (NSAIDs; OR, 1.64, 95% CI, 1.2-2.2), and selective serotonin reuptake inhibitors (SSRIs; OR, 1.74, 95% CI, 1.2-2.5). Symptoms were not associated with villus atrophy after adjusting for covariates.

**Conclusions** A majority of symptomatic coeliac disease patients did not have active disease on follow-up histology. Symptoms were poorly predictive of persistent mucosal injury. The impact of NSAIDs, PPIs, and SSRIs on mucosal healing in coeliac disease warrants further study.

**Colitis and NSAIDS**

*J Gastroenterol Hepatol.* 2017 Feb 21. doi: 10.1111/jgh.13770.

**Evaluating clinical, dietary and psychological risk factors for relapse of ulcerative colitis in clinical, endoscopic and histological remission.**

Dhingra R<sup>1</sup>, Kedia S<sup>1</sup>, Venigalla PM<sup>1</sup>, Kumar S<sup>1</sup>, Singh N<sup>1</sup>, Bopanna S<sup>1</sup>, Singla V<sup>1</sup>, Choudhury BN<sup>1</sup>, Verma P<sup>1</sup>, Tiwari V<sup>1</sup>, Datta Gupta S<sup>2</sup>, Makharia G<sup>1</sup>, Ahuja V<sup>1</sup>.

Author information

Abstract

**BACKGROUND:**

The literature on possible factors that could trigger a relapse in patients with ulcerative colitis (UC) in clinical, endoscopic and histological remission on long term follow up is scarce.

**AIM:**

To determine the relapse rate in patients with UC in clinical, endoscopic and histological remission and identify factors that may influence the risk of relapse.

**METHODS:**

Patients with UC in clinical, endoscopic and histological remission were enrolled between January-July 2010 and followed up for 1 year to determine the effect of clinical, dietary and psychological factors on relapse. Information regarding factors that may affect relapse such as infection, antibiotic or NSAIDs use and any other factor which the patient felt important, and compliance with medications was obtained.

**RESULTS:**

97 patients(59 males, mean age 39 + 11.9 years) were followed up for a mean duration of 9 + 2.3 months. 18(18.6%) relapsed with the median time to relapse being 3.5 months. On univariate analysis more relapsers had significantly higher NSAIDs use within 15 days of relapse, respiratory tract infection within 4 weeks, use of steroids more than once in past, higher consumption of calcium, riboflavin, vitamin A and lower consumption of sugars. On multivariate analysis, NSAIDs use [HR(95% CI):6.41(1.88-21.9)]and intake of Vitamin A [HR(95% CI):1.008(1.000-1.016)] were statistically significant predictors of relapse.

**CONCLUSION:**

With a relapse rate of 18.6% over a follow up of 9 months in patients with UC in clinical, endoscopic and histological remission, independent predictors of relapse were history of NSAIDs use within 15 days of relapse and higher intake of Vitamin A.

### 13. CRANIUM/TMJ

#### Periodontitis and sleep duration

*J Clin Periodontol.* 2017 Feb 17. doi: 10.1111/jcpe.12713.

#### **The association between periodontitis and sleep duration.**

Romandini M<sup>1,2,3,4</sup>, Gioco G<sup>1</sup>, Perfetti G<sup>4</sup>, Deli G<sup>1,2</sup>, Staderini E<sup>1</sup>, Lafori A<sup>1,2</sup>.

#### Author information

Abstract

#### *AIM:*

Due to its potential to influence systemic inflammation and oxidative stress, and to predispose to bacterial infections, sleep duration could potentially be a risk factor for periodontitis. The aim of this cross-sectional study was to evaluate if there was in 2012 an association between periodontitis and sleep duration in a representative sample of the South Korean population.

#### *MATERIALS AND METHODS:*

A total of 5,812 subjects representative of 39.4 million of adults were examined. Multivariate logistic regressions were applied controlling for age, gender, education, smoking status, alcoholism and consumption frequency of coffee, tea, chocolate and red wine.

#### *RESULTS:*

Compared to the group sleeping  $\leq 5$ h/day, the adjusted odds ratios for periodontitis prevalence defined as CPI=4 were OR=2.46(95%CI:1.20-5.06) in the 6h/day sleepers group, OR=2.66(95%CI:1.35-5.25) in the 7h/day sleepers group, OR=2.29(95%CI:1.13-4.63) in the 8h/day sleepers group and OR=4.27(95%CI:1.83-9.97) in the  $\geq 9$ h/day sleepers group. The association has shown to be highlighted in middle-aged people, females, non-smokers, lower educated, with lower lead and higher cadmium blood levels and with higher carotene dietary intake ones and to be partially mediated by lipid profile alterations, diabetes, serum Vitamin D levels and WBC count.

#### *CONCLUSIONS:*

A novel, direct and independent association between sleep duration and the prevalence of periodontitis was found. However, it needs to be investigated how the factors influencing the sleep duration affect this association. This article is protected by copyright. All rights reserved.

**Bruxism and bullying**

J Oral Rehabil. 2017 Feb 18. doi: 10.1111/joor.12496.

**Is there an association between verbal school bullying and possible sleep bruxism in adolescents?**

Serra-Negra JM<sup>1</sup>, Pordeus IA<sup>1</sup>, Corrêa-Faria P<sup>2</sup>, Fulgêncio LB<sup>1</sup>, Paiva SM<sup>1</sup>, Manfredini D<sup>3</sup>.

Author information

Abstract

The aim of this study was to determine the association between verbal school bullying and possible sleep bruxism (SB) in adolescents. A case-control study was carried out at the population level by recruiting 13- to 15-year old participants among the attendants of schools of Itabira, Brazil. The case group was composed of 103 adolescents with possible SB (i.e., self- or parental-reported), while the control group included 206 adolescents without possible SB. All participants answered a questionnaire on the occurrence of their involvement in verbal school bullying episodes, based on the National School of Health Research (PeNSE) as well as an evaluation of their economic class according to the criteria of the Brazilian Association of Research Companies. Pearson's chi-square, McNemar test and conditional logistic regression were performed to assess the association between possible SB, verbal school bullying, and economic class. There were 134 (43.3%) participants who reported involvement in verbal school bullying episodes as a victim, bully, or both. The majority of them were males (90.3%).

Adolescents with possible SB were more likely to have been involved in episodes of verbal school bullying (OR:6.20; 95% CI: 3.67-10.48). Based on these findings, it can be suggested that possible SB in young teenagers is associated with a history of episodes of verbal school bullying. This article is protected by copyright. All rights reserved.

**Appliance for mandibular length**

BMC Oral Health. 2017 Feb 1;17(1):52. doi: 10.1186/s12903-017-0339-8.

**Effect of removable functional appliances on mandibular length in patients with class II with retrognathism: systematic review and meta-analysis.**

Santamaría-Villegas A<sup>1</sup>, Manrique-Hernandez R<sup>2</sup>, Alvarez-Varela E<sup>2</sup>, Restrepo-Serna C<sup>3</sup>.

Author information

Abstract

**BACKGROUND:**

Orthopedic functional devices, are used to improve mandibular length in skeletal class II patients. However, the orthopedic functional device with the best effect to increasing the mandibular length, has not been identified before. Thus, the aim of the present investigation was to evaluate Randomized Controlled Trials (RCT), to determine the best functional appliance improving mandibular length in subjects with retrognathism.

**METHODS:**

A systematic review and meta-analysis was performed, including studies published and indexed in databases between 1966 and 2016. RCTs evaluating functional appliances' effects on mandibular length (Condilion-Gnation (Co-Gn) and Condilion-Pogonion (Co-Po)), were included. Reports' structure was evaluated according to 2010 CONSORT guide. The outcome measure was distance between Co-Gn and/or Co-Po after treatment. Data were analyzed with Cochran Q Test and random effects model.

**RESULTS:**

Five studies were included in the meta-analysis. The overall difference in mandibular length was 1.53 mm (Confidence Interval (CI) 95% 1.15-1.92) in comparison to non-treated group. The Sander Bite Jumping reported the greatest increase in mandibular length (3.40 mm; CI 95% 1.69-5.11), followed by Twin Block, Bionator, Harvold Activator and Frankel devices.

**CONCLUSIONS:**

All removable functional appliances, aiming to increase mandibular length, are useful. Sander Bite Jumping was observed to be the most effective device to improve the mandibular length.

**HA helps TMJ OA**

Int J Oral Maxillofac Surg. 2017 Feb 19. pii: S0901-5027(17)30034-6. doi: 10.1016/j.ijom.2017.01.014.

**Effect of hyaluronic acid on the regulation of inflammatory mediators in osteoarthritis of the temporomandibular joint: a systematic review.**

Iturriaga V<sup>1</sup>, Bornhardt T<sup>2</sup>, Manterola C<sup>3</sup>, Brebi P<sup>4</sup>.

Author information

Abstract

Osteoarthritis is one of the most frequent pathologies affecting the temporomandibular joint (TMJ). There is evidence that the use of intra-articular hyaluronic acid (HA) for the treatment of this disorder achieves positive effects through a reduction in inflammatory mediators. A systematic review of the available evidence regarding the regulation of inflammatory mediators when applying HA in osteoarthritis of the TMJ in humans was performed. The Web of Science, Embase, ScienceDirect, MEDLINE, Scopus, EBSCOhost, and LILACS databases, SciELO library, and search engine Trip Database were searched systematically. Two thousand eight hundred and sixty-three related articles were found, of which only two met the selection criteria (both were clinical trials and evidence level 2b for treatment studies). These two articles represented a population of 87 patients. Both articles reported that the application of HA had a positive effect on the regulation of inflammatory mediators; the mediators studied were those of the plasminogen activator system and levels of nitric oxide.

The limited evidence available suggests that the application of HA regulates various inflammatory mediators in osteoarthritic processes in the TMJ. Nevertheless, further evidence in this regard is required, through the study of specific pathologies of the TMJ, complementing the assessment of clinical parameters with molecular studies, and generating good quality clinical studies with larger sample sizes.



## 14. HEADACHES

### Emotions and HA's

Headache. 2017 Jan 31. doi: 10.1111/head.13021.

#### **Psychological Factors Associated With Chronic Migraine and Severe Migraine-Related Disability: An Observational Study in a Tertiary Headache Center.**

Seng EK<sup>1,2,3</sup>, Buse DC<sup>1,2,3</sup>, Klepper JE<sup>1</sup>, J Mayson S<sup>1</sup>, Grinberg AS<sup>1</sup>, Grosberg BM<sup>4</sup>, Pavlovic JM<sup>2,3</sup>, Robbins MS<sup>2,3</sup>, Vollbracht SE<sup>2,3</sup>, Lipton RB<sup>2,3</sup>.

Author information

Abstract

#### *OBJECTIVE:*

To evaluate the relationships among modifiable psychological factors and chronic migraine and severe migraine-related disability in a clinic-based sample of persons with migraine.

#### *BACKGROUND:*

Evidence evaluating relationships between modifiable psychological factors and chronic migraine and severe migraine-related disability is lacking in people with migraine presenting for routine clinical care.

#### *METHODS:*

Adults with migraine completed surveys during routinely scheduled visits to a tertiary headache center. Participants completed surveys assessing chronic migraine (meeting criteria for migraine with  $\geq 15$  headache days in the past month), severe migraine disability (Migraine Disability Assessment Scale score  $\geq 21$ ), and modifiable psychological factors (depressive symptoms [Patient Health Questionnaire-9], anxious symptoms [Generalized Anxiety Disorder-7], Pain Catastrophizing Scale and Headache Specific Locus of Control). Logistic regression evaluated relationships between modifiable psychological factors and chronic migraine and severe migraine disability.

#### *RESULTS:*

Among 90 eligible participants the mean age was 45.0 (SD = 12.4); 84.8% were women. One-third (36.0%) met study criteria for chronic migraine; half of participants (51.5%) reported severe migraine-related disability. Higher depressive symptoms (OR = 1.99, 95% CI = 1.11, 3.55) and chance HSLC (OR = 1.85, 95% CI = 1.13, 1.43) were associated with chronic migraine. Higher depressive symptoms (OR = 3.54, 95% CI = 1.49, 8.41), anxiety symptoms (OR = 3.65, 95% CI = 1.65, 8.06), and pain catastrophizing (OR = 1.95, 95% CI = 1.14, 3.35), were associated with severe migraine-related disability.

#### *CONCLUSIONS:*

Psychiatric symptoms and pain catastrophizing were strongly associated with severe migraine-related disability. Depression and chance locus of control were associated with chronic migraine. This study supports the need for longitudinal observational studies to evaluate the relationships among naturalistic variation in psychological factors, migraine-related disability, and migraine chronification.

**Temporalis muscle pain sensitivity**

Pain Pract. 2017 Feb 22. doi: 10.1111/papr.12565.

**Topographical Pressure Pain Sensitivity Maps of the Temporalis Muscle in People with Frequent Episodic and Chronic Tension-Type Headache.**

Palacios Ceña M<sup>1,2</sup>, Castaldo M<sup>2,3,4</sup>, Wang K<sup>2</sup>, Madeleine P<sup>5</sup>, Guerrero ÁL<sup>6</sup>, Arendt-Nielsen L<sup>2</sup>, Fernández de Las Peñas C<sup>1,2</sup>.

Author information

Abstract

**BACKGROUND:**

Previous pilot studies suggest the presence of heterogeneous sensitivity to pressure in primary headaches without considering the frequency of headache episodes.

**OBJECTIVE:**

To investigate the differences in topographical pressure pain sensitivity maps in the temporalis muscle between individuals with frequent episodic (FETTH) and chronic (CTTH) tension-type headache by controlling the presence of anxiety and depression.

**METHODS:**

Pressure pain thresholds (PPTs) were assessed bilaterally from 9 points distributed over the temporalis muscle (3 points in the anterior portion, 3 in the middle portion, and the remaining 3 in the posterior portion of the muscle belly) in 113 patients with FETTH and 91 with CTTH in a blinded design. Topographical pressure pain sensitivity maps based on interpolation of the PPTs were constructed. Clinical features of headache were collected in a 4-week headache diary. Anxiety and depression (Hospital Anxiety and Depression Scale) were also assessed.

**RESULTS:**

The multilevel analysis of covariance found significant difference in PPT levels between points ( $F = 47.649$ ;  $P < 0.001$ ), but not between groups ( $F = 0.801$ ;  $P = 0.602$ ) or sides ( $F = 0.331$ ;  $P = 0.565$ ). No significant effect of gender ( $F = 0.785$ ;  $P = 0.667$ ), depression ( $F = 0.515$ ;  $P = 0.846$ ), or anxiety ( $F = 0.639$ ;  $P = 0.745$ ) was observed. Post hoc comparisons revealed: (1) no differences between FETTH or CTTH; (2) no side-to-side differences; and (3) anterior-to-posterior gradient with the most sensitive points located in the anterior column, followed by those located in the central column and the posterior column of the muscle (all,  $P < 0.001$ ).

**CONCLUSIONS:**

This study confirmed an anterior-to-posterior gradient of sensitivity to pressure in both groups, with the highest sensitivity at the anterior part of the muscle. Further, we found similar pressure pain sensitivity in the trigeminal area in people with FETTH or CTTH with no association to depressive or anxiety levels. This article is protected by copyright. All rights reserved.

## 16. CONCUSSIONS

### Soccer and dementia

Acta Neuropathol. 2017 Feb 15. doi: 10.1007/s00401-017-1680-3.

#### **Mixed pathologies including chronic traumatic encephalopathy account for dementia in retired association football (soccer) players.**

Ling H<sup>1,2,3</sup>, Morris HR<sup>4</sup>, Neal JW<sup>5</sup>, Lees AJ<sup>1,2</sup>, Hardy J<sup>1,2,3</sup>, Holton JL<sup>6,7,8</sup>, Revesz T<sup>9,10,11</sup>, Williams DD<sup>12</sup>.

Author information

Abstract

In retired professional association football (soccer) players with a past history of repetitive head impacts, chronic traumatic encephalopathy (CTE) is a potential neurodegenerative cause of dementia and motor impairments.

From 1980 to 2010, 14 retired footballers with dementia were followed up regularly until death. Their clinical data, playing career, and concussion history were prospectively collected. Next-of-kin provided consent for six to have post-mortem brain examination. Of the 14 male participants, 13 were professional and 1 was a committed amateur. All were skilled headers of the ball and had played football for an average of 26 years. Concussion rate was limited in six cases to one episode each during their careers. All cases developed progressive cognitive impairment with an average age at onset of 63.6 years and disease duration of 10 years. Neuropathological examination revealed septal abnormalities in all six post-mortem cases, supportive of a history of chronic repetitive head impacts. Four cases had pathologically confirmed CTE; concomitant pathologies included Alzheimer's disease (N = 6), TDP-43 (N = 6), cerebral amyloid angiopathy (N = 5), hippocampal sclerosis (N = 2), corticobasal degeneration (N = 1), dementia with Lewy bodies (N = 1), and vascular pathology (N = 1); and all would have contributed synergistically to the clinical manifestations. The pathological diagnosis of CTE was established in four individuals according to the latest consensus diagnostic criteria. This finding is probably related to their past prolonged exposure to repetitive head impacts from head-to-player collisions and heading the ball thousands of time throughout their careers.

Alzheimer's disease and TDP-43 pathologies are common concomitant findings in CTE, both of which are increasingly considered as part of the CTE pathological entity in older individuals. Association football is the most popular sport in the world and the potential link between repetitive head impacts from playing football and CTE as indicated from our findings is of considerable public health interest.

Clearly, a definitive link cannot be established in this clinico-pathological series, but our findings support the need for further systematic investigation, including large-scale case-control studies to identify at risk groups of footballers which will justify for the implementation of protective strategies.

**17. SHOULDER GIRDLE****Shoulder girdle focus of shoulder care**

Br J Sports Med. 2017 Mar;51(5):436-441. doi: 10.1136/bjsports-2015-095460. Epub 2016 Jun 1.

**Clinical outcomes of a scapular-focused treatment in patients with subacromial pain syndrome: a systematic review.**

Reijnveld EA<sup>1</sup>, Noten S<sup>2</sup>, Michener LA<sup>3</sup>, Cools A<sup>4</sup>, Struyf F<sup>2</sup>.

Author information

Abstract

**OBJECTIVE:**

To systematically review the literature on the clinical outcomes of scapular-focused treatments in participants with subacromial pain syndrome (SPS).

**DESIGN:**

Systematic literature review. Studies were appraised by two reviewers using the Physiotherapy Evidence Database (PEDro) scale, and a best-evidence synthesis was performed.

**DATA SOURCES:**

The literature search was conducted in the databases PubMed, Embase and Cinahl up to February 2015.

**ELIGIBILITY CRITERIA FOR SELECTING STUDIES:**

Randomised controlled trials evaluating the clinical outcomes of a physiotherapeutic scapular-focused treatment in participants with SPS.

**RESULTS:**

Four studies were included describing various scapular-focused interventions, including scapular-focused exercise therapy, scapular mobilisation and scapular taping. All included studies had a PEDro score of 6 or higher, indicating low risk of bias. There was moderate evidence that scapular-focused treatment compared with other physiotherapeutic treatment is effective in improving scapular muscle strength in participants with SPS. Conflicting evidence was found for improvements in pain, function and clinical measures of scapular positioning. No evidence was found for improvements in shoulder range of motion or rotator cuff muscle strength.

**CONCLUSIONS:**

There is some support for the use of scapular-focused exercise therapy in patients with SPS. Owing to the low number of studies, no firm conclusions can be drawn. Therefore, more randomised controlled trials are needed to determine the clinical outcomes of scapular-focused exercise therapy, scapular mobilisation techniques and scapular taping in patients with SPS.

**28. REPLACEMENTS****Total and smoking**

J Bone Joint Surg Am. 2017 Feb 15;99(4):295-304. doi: 10.2106/JBJS.16.00311.

**Smoking Increases the Rate of Reoperation for Infection within 90 Days After Primary Total Joint Arthroplasty.**

Tischler EH<sup>1</sup>, Matsen Ko L, Chen AF, Maltenfort MG, Schroeder J, Austin MS.

Author information

Abstract

**BACKGROUND:**

The relationship between smoking and complications after total joint arthroplasty is unclear. Prior studies have been limited by relatively small sample sizes or investigation of select cohorts. The purpose of this study was to investigate the association between smoking and readmission and/or reoperation within 90 days of total joint arthroplasty in a large, non-select cohort of patients.

**METHODS:**

Using our institutional database, we retrospectively identified patients who underwent primary total joint arthroplasty between 2000 and 2014. Patients were stratified into 1 of 3 groups: current smokers, former smokers, and nonsmokers. The association between smoking status and subsequent readmission and/or reoperation within 90 days was investigated using multivariate regression analysis.

**RESULTS:**

We retrospectively identified 15,264 patients (6,749 male and 8,515 female) who underwent 17,394 total joint arthroplasties during the study period. Of these patients, 1,371 (9.0%) were current smokers, 5,195 (34.0%) were former smokers, and 8,698 (57.0%) were nonsmokers. Former smokers reported a median of 22.2 years (range, 0.2 to 60 years) of abstinence prior to the surgical procedure. Current smokers were significantly younger ( $p < 0.001$ ) at a mean age (and standard deviation) of  $57.7 \pm 10.3$  years than nonsmokers at  $63.2 \pm 11.8$  years. Current smokers were significantly more likely than nonsmokers to undergo reoperation for infection (odds ratio [OR], 1.82 [95% confidence interval (CI), 1.03 to 3.23];  $p = 0.04$ ), and former smokers were at no increased risk (OR, 1.11 [95% CI, 0.73 to 1.69];  $p = 0.61$ ). Packs per decade were independently associated with an increased risk of 90-day nonoperative readmission regardless of smoking status (OR, 1.12 [95% CI, 1.03 to 1.20]). Lastly, neither smoking status nor packs per decade were associated with aseptic or total reoperations.

**CONCLUSIONS:**

This study, after controlling for confounding factors, demonstrated not only that current smokers have a significantly increased risk of reoperation for infection within 90 days of a surgical procedure compared with nonsmokers, but also that the amount that one has smoked, regardless of current smoking status, significantly contributed to increased risk of nonoperative readmission.

**LEVEL OF EVIDENCE:**

Prognostic Level III. See Instructions for Authors for a complete description of levels of evidence.

**29. OA****Neuropathic pain****Prevalence of neuropathic pain in knee or hip osteoarthritis: A systematic review and meta-analysis**

Seminars in Arthritis and Rheumatism, 02/22/2017

French HP, et al.

Physicians designed this study to obtain an overall prevalence estimate by systematically reviewing and meta-analysing the prevalence of neuropathic pain in people with hip or knee osteoarthritis (OA). In people with knee or hip OA, neuropathic pain prevalence is considerable at 23% and might be higher after other potential causes of neuropathic pain are excluded. Concerns regarding the validity of neuropathic pain questionnaires, selection bias, methodological quality and study heterogeneity suggest caution with the interpretation of these findings.

**Methods**

- The physicians considered observational studies which measured neuropathic pain in people aged 18 years and older with hip or knee OA for inclusion.
- They searched electronic databases up to February 2016.
- In this study, 2 reviewers independently identified eligible studies and assessed methodological quality.
- Using random effects meta-analytic techniques, prevalence estimates and 95% confidence intervals were calculated.

**Results**

- 9 studies met the inclusion criteria.
- To determine neuropathic pain, study samples were from general population, hospital and community settings and all used self-report questionnaires.
- With considerable heterogeneity ( $I^2=97.9%$ ,  $p<.001$ ), the overall prevalence estimate was 23% (95% CI 10%-39%).
- As per the outcomes, this estimate was largely unchanged with subgroup analyses based on index joint, questionnaire type, setting and consideration of other potential causes of neuropathic pain.
- Though, the estimate for 2 studies that eliminated other potential causes of neuropathic pain was substantially higher (32%, 95% CI 29%-35%).

**Movement increases progression****Daily cumulative hip moment is associated with radiographic progression of secondary hip osteoarthritis**

Osteoarthritis and Cartilage , 02/22/2017

Tateuchi H, et al.

The physicians conducted this work to determine if higher daily cumulative hip moment at baseline is associated with subsequent radiographic progression of hip osteoarthritis (OA) over 12 months. The results indicated that higher daily cumulative hip moment, particularly in the frontal plane, was a predictor of radiographic progression of hip OA over 12 months in the female patients with secondary hip OA. Moreover, reduction in daily cumulative hip moment by modification in gait and physical activity may potentially slow hip OA progression.

**Methods**

- Clinicians conducted a prospective cohort study including a total of 50 patients with secondary hip OA, excluding patients with end-stage hip OA.
- They assessed joint space width (JSW) of the hip at baseline and 12 months later.
- With radiographic progression of hip OA ( $>0.5$  mm/year in JSW) as dependent variable (yes/no), they used univariable and multivariable logistic regression analyses to evaluate the correlation between load-related parameters during gait (i.e., peak hip moment, hip moment impulse, and daily cumulative hip moment [product of hip moment impulse and mean steps/day]) and hip OA progression with and without adjustment for age, body weight, and minimum JSW.

**Results**

- 21 (42.0%), out of 50 patients were classified into the progression group.
- The results of this study displayed that the higher daily cumulative hip moment in the frontal plane at baseline was statistically significantly associated with radiographic progression of hip OA (adjusted OR [95% CI], 1.34 [1.06–1.70];  $P = 0.013$ ).
- It was demonstrated that the higher daily cumulative hip moment in the sagittal plane was also approaching significance in its association with hip OA progression (adjusted OR, 1.80 [0.99–3.26];  $P = 0.052$ ).

**30 A. IMPINGEMENT****Exercise and HI****Relationship between physical activity and hip pain in persons with and without cam or pincer morphology: A population-based case-control study**

Jacek A. Kopec et al.

DOI: <http://dx.doi.org/10.1016/j.joca.2017.02.795>

**Objectives**

The purpose of the study was to determine if physical activity (PA) is a risk factor for persistent or recurrent hip pain in young and middle-aged persons with and without radiographic findings of cam or pincer morphology (CPM).

**Methods**

A population sample of persons aged 20-49 with (cases) and without (controls) hip pain in Metro Vancouver, Canada, was selected through random digit dialing. Self-reported PA was expressed as average energy expenditure (MET-hours) per year, over lifetime. CPM was defined as alpha angle  $>55^\circ$ , lateral centre edge angle (LCE)  $>40^\circ$ , or positive cross-over sign.

**Results**

Data were obtained for 500 subjects, 269 cases and 231 controls. Prevalence of radiographic CPM was 49% in the cases and 44% in the controls. In a logistic regression model adjusted for age, gender and CPM, total lifetime PA, including occupational, domestic and recreational activities, was significantly associated with hip pain (OR 1.30 per 1000 MET-hours, 95% CI 1.15-1.38). The effect of total PA was observed in those with CPM (1.44, 1.17-1.78) and without CPM (1.23, 1.04-1.45). For domestic activities, the association was seen only in those with CPM (significant interaction). When PA was categorized into quartiles, higher levels of PA were associated with a greater risk of pain.

**Conclusions**

Physical activity, as measured by average energy expenditure over lifetime is a risk factor for hip pain in young and middle-aged persons. For some activities, the risk is likely increased in persons with radiographic evidence of cam or pincer morphology.



**31. KNEE****Frontal plane motion increase injury****ASSOCIATION BETWEEN FRONTAL PLANE KNEE CONTROL AND ACUTE LOWER EXTREMITY INJURIES**

1. Anu Räisänen<sup>1</sup>↓, Kati Pasanen<sup>1</sup>, Tron Krosshaug<sup>2</sup>, Pekka Kannus<sup>3</sup>, Tommi Vasankari<sup>3</sup>, Jari Parkkari<sup>1</sup>  
BMJ Vol 51 #4

**Abstract**

**Background** Single-leg squat (SLS) is a clinical tool used to assess knee control. Previous studies have proposed that knee valgus motion in the SLS could be related to injury risk, but this association has not been previously examined.

**Objective** The objective of this study was to investigate the association between acute lower extremity injuries and frontal plane knee control in young athletes.

**Design** This study is part of a prospective cohort study (PROFITS-study). As part of the baseline test battery, we measured frontal plane projection angles during SLS. We also measured the athlete's height and weight, and the athletes filled out a questionnaire describing their time-loss injuries during the past 12 months. We registered new time-loss injuries in the following 12 months on a weekly basis. Only athletes free from lower extremity injuries during the 12 months prior to baseline were included in the analyses.

**Setting** Research institute, youth sports.

**Participants** Ten local basketball and ten local floorball teams were invited to the study. Out of these, 9 basketball and 9 floorball teams agreed to participate. Only athletes who were 21 years or younger and were free from injury during baseline were eligible. Complete data were obtained from 306 athletes.

**Assessment of Risk Factors** A generalized linear mixed model was used to analyse the potential risk factors.

**Main Outcome Measurements** Acute time loss lower extremity injuries sustained during the 12 month period after baseline.

**Results** Displaying a frontal plane projection angle greater than 1 standard deviation above the mean ( $>23.8^\circ$ ) in the SLS was associated with a higher risk of lower extremity injuries (OR 5.57, 95% CI 1.61–19.32) and ankle injuries (OR 2.37, 95% CI 1.13–4.98).

**Conclusions** Based on this study, athletes who display large frontal plane projection angles during the SLS have an elevated risk of lower extremity injuries.

## Neuropathic pain

**Prevalence of neuropathic pain in knee or hip osteoarthritis: A systematic review and meta-analysis**

Seminars in Arthritis and Rheumatism, 02/22/2017

French HP, et al.

Physicians designed this study to obtain an overall prevalence estimate by systematically reviewing and meta-analysing the prevalence of neuropathic pain in people with hip or knee osteoarthritis (OA). In people with knee or hip OA, neuropathic pain prevalence is considerable at 23% and might be higher after other potential causes of neuropathic pain are excluded. Concerns regarding the validity of neuropathic pain questionnaires, selection bias, methodological quality and study heterogeneity suggest caution with the interpretation of these findings.

**Methods**

- The physicians considered observational studies which measured neuropathic pain in people aged 18 years and older with hip or knee OA for inclusion.
- They searched electronic databases up to February 2016.
- In this study, 2 reviewers independently identified eligible studies and assessed methodological quality.
- Using random effects meta-analytic techniques, prevalence estimates and 95% confidence intervals were calculated.

**Results**

- 9 studies met the inclusion criteria.
- To determine neuropathic pain, study samples were from general population, hospital and community settings and all used self-report questionnaires.
- With considerable heterogeneity ( $I^2=97.9\%$ ,  $p<.001$ ), the overall prevalence estimate was 23% (95% CI 10%-39%).
- As per the outcomes, this estimate was largely unchanged with subgroup analyses based on index joint, questionnaire type, setting and consideration of other potential causes of neuropathic pain.
- Though, the estimate for 2 studies that eliminated other potential causes of neuropathic pain was substantially higher (32%, 95% CI 29%-35%).

**37. OSTEOARTHRITIS/KNEE****Skin changes**

Arthritis Res Ther. 2017 Feb 17;19(1):36. doi: 10.1186/s13075-017-1226-z.

**Sex differences in the association of skin advanced glycation endproducts with knee osteoarthritis progression.**

Eaton CB<sup>1,2,3</sup>, Sayeed M<sup>4</sup>, Ameeraz S<sup>5</sup>, Roberts MB<sup>5</sup>, Maynard JD<sup>6</sup>, Driban JB<sup>7</sup>, McAlindon TE<sup>7</sup>.

Author information

Abstract

**BACKGROUND:**

The accumulation of advanced glycation endproducts in articular cartilage has been suggested as an etiologic factor in the development and progression of knee osteoarthritis (KOA).

**METHODS:**

We conducted a prospective cohort study of skin advanced glycation endproducts (sAGEs) measured non-invasively by skin intrinsic fluorescence and the relationship between sAGE KOA progression in 160 men and 287 women in a sub-cohort of the Osteoarthritis Initiative at a single site. KOA progression was measured by yearly changes in Osteoarthritis Research Society International (OARSI)-defined joint space narrowing (JSN) and by yearly changes in joint space width (JSW) from baseline to 48 months. Sex-stratified repeated measures, mixed models to account for correlation between the knees within persons and adjusted for age, body mass index (BMI), Kellgren-Lawrence (KL) grade, beam angle and rim-to-rim distance were utilized.

**RESULTS:**

Increasing tertiles of sAGE measured at 36 months were associated with greater JSN over 4 years in men but not in women. The percentage of knees with JSN at 48 months, by tertiles of sAGE, were 7.0%, 16.0% and 17.7% in men (p for linear trend = 0.03) and 11.4%, 14.4% and 8.4% in women (p for linear trend = 0.33). Using change in JSW as the outcome, a similar trend was found in men but it was not statistically significant in fully adjusted models and no association was found in women.

**CONCLUSION:**

This study provides preliminary evidence that sAGEs independent of age and BMI, are associated with knee JSN in men but not in women.

**Osteotomy**

Arch Orthop Trauma Surg. 2017 Mar;137(3):303-310. doi: 10.1007/s00402-016-2609-3. Epub 2017 Jan 28.

**Tibial condylar valgus osteotomy (TCVO) for osteoarthritis of the knee: 5-year clinical and radiological results.**

Chiba K<sup>1</sup>, Yonekura A<sup>2</sup>, Miyamoto T<sup>2</sup>, Osaki M<sup>2</sup>, Chiba G<sup>3</sup>.

Author information

Abstract

**PURPOSE:**

Tibial condylar valgus osteotomy (TCVO) is a type of opening-wedge high tibial osteotomy for advanced medial knee osteoarthritis (OA) with subluxated lateral joint. We report the concept, the current surgical technique with a locking plate, and the short-term clinical and radiological results of this procedure.

**METHODS:**

11 knees with medial OA and a widened lateral joint were treated by TCVO (KL stage III: 6, IV: 5). In this procedure, by the L-shaped osteotomy from the medial side of the proximal tibia to the intercondylar eminence and the valgus correction, lateralization of the mechanical axis and reduction of the subluxated lateral joint are obtained with early postoperative weight-bearing. Before, 6 months, 1, and 5 years after the operation, a visual analog scale (VAS), the Western Ontario and McMaster Universities Arthritis Index (WOMAC), alignment of the lower extremity, and congruency and stability of the femorotibial joint were investigated.

**RESULTS:**

The VAS improved from an average of 73 mm to 13 mm, and the total WOMAC score from 52 to 14 before to 5 years after the operation, respectively. The mechanical axis changed from 1 to 60%, and the FTA changed from 186° to 171°. The joint line convergence angle (JLCA) changed from 6° to 1°, and the angle difference of JLCA between varus and valgus stress improved from 8° to 4° after the procedure.

**CONCLUSION:**

Improvements in pain and activities of daily living were observed by TCVO along with valgus correction of the lower extremity and stabilization of the femorotibial joint.

**Variability in symptoms**

*BMC Musculoskelet Disord.* 2017 Feb 14;18(1):80. doi: 10.1186/s12891-017-1434-3.

**Significant pain variability in persons with, or at high risk of, knee osteoarthritis: preliminary investigation based on secondary analysis of cohort data.**

Parry E<sup>1</sup>, Ogollah R<sup>2</sup>, Peat G<sup>3</sup>.

Author information

## Abstract

**BACKGROUND:**

While knee osteoarthritis (OA) is characterised as a slowly progressive disease, acute flares, episodes of severe pain, and substantial fluctuations in pain intensity appear to be part of the natural history for some patients. We sought to estimate what proportion of symptomatic community-dwelling adults might be affected, and to identify patient and problem characteristics associated with higher risk of such variability in pain.

**METHODS:**

We analysed data collected at baseline, 18, 36, 54, and 72 month follow-up of a prospective cohort of symptomatic adults aged over 50 years with current/recent knee pain. At each time point we estimated the proportion of participants reporting 'significant pain variability' (defined as worst pain intensity in the past 6 months  $\geq 5/10$  and  $\geq 2$  points higher than average pain intensity during the same 6-month period). The associations between significant pain variability and demographic, socioeconomic, lifestyle, clinical, radiographic, and healthcare utilisation factors measured at baseline were estimated by adjusted odds ratios and 95% confidence intervals (aOR; 95%CI) from multivariable discrete-time survival analysis.

**RESULTS:**

Seven hundred and nineteen participants were included in the final analysis. At each time point, 23-32% of participants were classed as reporting significant pain variability. Associated factors included: younger age (aOR (per year): 0.96; 95% CI 0.94, 0.97), higher BMI (per  $\text{kg}/\text{m}^2$ : 1.03; 1.01, 1.06), higher WOMAC Pain score (per unit: 1.06; 1.03, 1.10), longer time since onset (e.g. 1-5 years vs < 1 year: 1.79; 1.16, 2.75) and morning stiffness ( $\leq 30$  min vs none: 1.43; 1.10, 1.85). The models accounting for multiple periods of significant symptom variability found similar associations.

**CONCLUSIONS:**

Our findings are consistent with studies showing that, for some patients OA symptoms are significantly variable over time. Future prospective studies on the nature and frequency of flare ups are needed to help determine triggers and their underlying pathophysiology in order to suggest new avenues for effective episode management of OA to complement long-term behaviour change.

## Changes in gait

**Differential knee joint loading patterns during gait for individuals with tibiofemoral and patellofemoral articular cartilage defects in the knee**

Louise M. Thoma Michael P. McNally Ajit M. Chaudhari Thomas M. Best David C. Flanigan  
Robert A. Siston Laura C. Schmitt

DOI: <http://dx.doi.org/10.1016/j.joca.2017.02.794>

**Objective**

To determine compartment-specific loading patterns during gait, quantified as joint reaction forces (JRF), of individuals with knee articular cartilage defects (ACD) compared to healthy controls.

**Methods**

Individuals with ACDs and healthy controls (HC) participated. Individuals with ACDs were divided into groups according to ACD location: PF (only a patellofemoral ACD), TF (only a tibiofemoral ACD), and MIX (both PF and TF ACDs). Participants underwent 3-dimensional gait analysis at self-selected speed. TF-JRF was calculated using inverse dynamics. PF-JRF was derived from estimated quadriceps force and knee flexion angle. Primary variables of interest were the PF- and TF-JRF peaks (body weight [xBW]). Related secondary variables (gait speed, quadriceps strength, knee function, activity level) were evaluated as covariates.

**Results**

1st peak PF-JRF and TF-JRF were similar in the TF and MIX groups (0.75-1.0xBW,  $p=.6-.9$ ). Both peaks were also similar in the PF and HC groups (1.1-1.3xBW,  $p=.7-.8$ ), and higher than the TF and MIX groups ( $p=.004-.02$ ). For the 2<sup>nd</sup> peak PF-JRF, only the HC group was higher than the TF group ( $p=.02$ ). The PF group walked at a similar speed as the HC group; both groups walked faster than the TF and MIX groups ( $p<0.001$ ). With gait speed and quadriceps strength as covariates, no differences were observed in JRF peaks.

**Conclusions**

The results suggest the presence of a TF ACD (TF and MIX groups), but not a PF ACD (PF group), may affect joint loading patterns during walking. Walking slower may be a protective gait modification to reduce load.

**BMD and OA**

Arthritis Care Res (Hoboken). 2017 Jan 27. doi: 10.1002/acr.23211.

**Bone Mineral Density and the Risk of Hip and Knee Osteoarthritis: The Johnston County Osteoarthritis Project.**

Barbour KE<sup>1</sup>, Murphy LB<sup>1</sup>, Helmick CG<sup>1</sup>, Hootman JM<sup>1</sup>, Renner JB<sup>2,3</sup>, Jordan JM<sup>4,3</sup>.

Author information

## Abstract

*OBJECTIVES:*

To address knowledge gaps regarding the relationship between bone mineral density (BMD) and incident hip or knee osteoarthritis (OA); specifically, lack of information regarding hip OA or symptomatic outcomes.

*METHODS:*

Using data (N=1,474) from the Johnston County Osteoarthritis (JoCo OA) Project's first (1999-2004) and second follow-up (2005-2010) of participants aged  $\geq 45$  years we examined the association between total hip BMD and both hip and knee OA. Total hip BMD was measured using dual-energy X-ray absorptiometry, and participants were classified into sex-specific quartiles (low, intermediate low, intermediate high, and high). Radiographic osteoarthritis (ROA) was defined as development of Kellgren-Lawrence grade  $\geq 2$ . Symptomatic ROA (sROA) was defined as onset of both ROA and symptoms. Weibull regression modeling was used to estimate hazard ratios (HR) and 95% confidence intervals (95% CIs).

*RESULTS:*

Median follow-up time was 6.5 (range=4.0-10.2) years. In multivariate models, and compared with participants with low BMD, those with intermediate high and high BMD were less likely to develop hip sROA (HR (95% CIs) 0.52 (0.31- 0.86) and 0.56 (0.31 - 0.86), respectively; p-trend = 0.024); high BMD was not associated (0.69 (0.45-1.06)) with risk of hip ROA. Compared with participants with low BMD, those with intermediate low and intermediate high total hip BMD were more likely to develop knee sROA (2.15 (1.40-3.30) and 1.65 (1.02-2.67), respectively; p-trend=0.325); similar associations were seen with knee ROA.

*CONCLUSIONS:*

Our findings suggest that higher BMD may reduce the risk hip sROA, while intermediate levels may increase the risk of both knee sROA and ROA. This article is protected by copyright. All rights reserved.

**Development of OA related to strength**

Arthritis Care Res (Hoboken). 2017 Feb 8. doi: 10.1002/acr.23182.

**Thigh muscle specific strength and the risk of incident knee osteoarthritis: The influence of sex and greater body mass index.**

Culvenor AG<sup>1,2</sup>, Felson DT<sup>3,4</sup>, Niu J<sup>3</sup>, Wirth W<sup>1</sup>, Sattler M<sup>1</sup>, Dannhauer T<sup>1</sup>, Eckstein F<sup>1</sup>.

Author information

Abstract

**OBJECTIVE:**

To determine whether lower thigh muscle specific strength increases risk of incident radiographic knee osteoarthritis (RKO), and whether there exists a sex-specific relationship between thigh muscle specific strength and BMI.

**METHODS:**

161 Osteoarthritis Initiative participants (62% female) with incident RKO (Kellgren-Lawrence grade 0/1 at baseline, developing an osteophyte and joint space narrowing grade  $\geq 1$  by year 4) were matched to 186 controls (58% female) without incident RKO. Thigh muscle anatomical cross-sectional areas (ACSAs) were determined at baseline using axial MRI scans. Isometric extensor and flexor muscle strength were measured at baseline and specific strength (strength $\div$ ACSA) calculated. Logistic regression assessed risk of incident RKO associated with muscle specific strength (with and without adjustment for BMI).

**RESULTS:**

Lower knee extensor and flexor specific strength significantly increased the risk of incident RKO in women (OR 1.47 [95%CI 1.10, 1.96] and 1.41 [1.06, 1.89], respectively) but not in men. The significant relationship in women was lost after adjustment for BMI. Lower specific strength was associated with higher BMI in women ( $r=-0.29$ ,  $p<0.001$ ), but not in men; whereas (absolute) strength was associated with BMI in men ( $r=0.28$ ,  $p=0.001$ ), but not in women.

**CONCLUSION:**

Lower thigh muscle specific strength predicts incident RKO in women, with this relationship being confounded by BMI. The sex-specific relationship between muscle specific strength and BMI provides a possible explanation why women with muscle strength deficits typically have a poorer prognosis than men with similar strength deficits. This article is protected by copyright. All rights reserved.



**44. RHUMATOID ARTHRITIS****Diet affected RA**

Arthritis Care Res (Hoboken). 2017 Feb 19. doi: 10.1002/acr.23225.

Diet and Rheumatoid Arthritis Symptoms: Survey Results From a Rheumatoid Arthritis Registry.

Tedeschi SK, Frits M, Cui J, Zhang ZZ, Mahmoud T, Iannaccone C, Lin TC, Yoshida K, Weinblatt ME, Shadick NA, Solomon DH.

Abstract

**OBJECTIVE:**

Patients with RA often ask if specific foods, popularized as "inflammatory" or "anti-inflammatory," can improve or worsen their RA. We surveyed patients regarding diet and RA symptoms.

**METHODS:**

We mailed a diet survey to 300 subjects in a single-center RA registry at a large academic center. Subjects were asked whether they consume each of 20 foods and whether these foods make their RA symptoms better, worse, or unchanged. Semi-annual registry data include demographics, medications, comorbidities, and disease activity scores. Fisher's exact and Wilcoxon rank-sum tests evaluated associations between subject characteristics from the most recent registry assessment and change in RA symptoms from specific foods.

**RESULTS:**

Among 217 subjects (72% response rate), 83% were female, median RA duration was 17 years (IQR 9-27), and 58% were using a biologic DMARD. Twenty-four percent of subjects reported that foods affect their RA, with 15% reporting improvement and 19% worsening. Blueberries and spinach were the foods most often reported to improve RA symptoms, while soda with sugar and desserts were most often reported to worsen RA symptoms. Younger age and noting that sleep, warm room temperature, and vitamin/mineral supplements improve RA were each associated with reporting that foods affect RA symptoms. Medication use, sex, body mass index, smoking, disease duration, disease activity scores, and self-reported RA flares were not associated with reporting that foods affect RA.

**CONCLUSION:**

Nearly one-quarter of RA subjects with longstanding disease reported an effect of diet on their RA symptoms. This article is protected by copyright. All rights reserved.

## 48 A. STM

## Temporalis muscle pain sensitivity

Pain Pract. 2017 Feb 22. doi: 10.1111/papr.12565.

**Topographical Pressure Pain Sensitivity Maps of the Temporalis Muscle in People with Frequent Episodic and Chronic Tension-Type Headache.**

Palacios Ceña M<sup>1,2</sup>, Castaldo M<sup>2,3,4</sup>, Wang K<sup>2</sup>, Madeleine P<sup>5</sup>, Guerrero ÁL<sup>6</sup>, Arendt-Nielsen L<sup>2</sup>, Fernández de Las Peñas C<sup>1,2</sup>.

Author information

Abstract

**BACKGROUND:**

Previous pilot studies suggest the presence of heterogeneous sensitivity to pressure in primary headaches without considering the frequency of headache episodes.

**OBJECTIVE:**

To investigate the differences in topographical pressure pain sensitivity maps in the temporalis muscle between individuals with frequent episodic (FETTH) and chronic (CTTH) tension-type headache by controlling the presence of anxiety and depression.

**METHODS:**

Pressure pain thresholds (PPTs) were assessed bilaterally from 9 points distributed over the temporalis muscle (3 points in the anterior portion, 3 in the middle portion, and the remaining 3 in the posterior portion of the muscle belly) in 113 patients with FETTH and 91 with CTTH in a blinded design. Topographical pressure pain sensitivity maps based on interpolation of the PPTs were constructed. Clinical features of headache were collected in a 4-week headache diary. Anxiety and depression (Hospital Anxiety and Depression Scale) were also assessed.

**RESULTS:**

The multilevel analysis of covariance found significant difference in PPT levels between points ( $F = 47.649$ ;  $P < 0.001$ ), but not between groups ( $F = 0.801$ ;  $P = 0.602$ ) or sides ( $F = 0.331$ ;  $P = 0.565$ ). No significant effect of gender ( $F = 0.785$ ;  $P = 0.667$ ), depression ( $F = 0.515$ ;  $P = 0.846$ ), or anxiety ( $F = 0.639$ ;  $P = 0.745$ ) was observed. Post hoc comparisons revealed: (1) no differences between FETTH or CTTH; (2) no side-to-side differences; and (3) anterior-to-posterior gradient with the most sensitive points located in the anterior column, followed by those located in the central column and the posterior column of the muscle (all,  $P < 0.001$ ).

**CONCLUSIONS:**

This study confirmed an anterior-to-posterior gradient of sensitivity to pressure in both groups, with the highest sensitivity at the anterior part of the muscle. Further, we found similar pressure pain sensitivity in the trigeminal area in people with FETTH or CTTH with no association to depressive or anxiety levels. This article is protected by copyright. All rights reserved.

**51. CFS/BET****Office workers neck pain**

Int Arch Occup Environ Health. 2017 Feb 21. doi: 10.1007/s00420-017-1205-3.

**Physical risk factors for developing non-specific neck pain in office workers: a systematic review and meta-analysis.**

Jun D<sup>1,2</sup>, Zoe M<sup>3,4,5</sup>, Johnston V<sup>6</sup>, O'Leary S<sup>6,3</sup>.

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

Identifying risk factors associated with the development of work-related neck pain in office workers is necessary to facilitate the development of prevention strategies that aim to minimise this prevalent and costly health problem. The aim of this systematic review is to identify individual worker (e.g., lifestyle activity, muscular strength, and posture) and workplace (e.g., ergonomics and work environment) physical factors associated with the development of non-specific neck pain in office workers.

**METHODS:**

Studies from 1980 to 2016 were identified by an electronic search of Pubmed, CINAHL, EMBASE, PsychInfo and Proquest databases. Two authors independently screened search results, extracted data, and assessed risk of bias using the epidemiological appraisal instrument (EAI). A random effect model was used to estimate the risk of physical factors for neck pain.

**RESULTS:**

Twenty papers described the findings of ten prospective cohort studies and two randomized controlled trials. Low satisfaction with the workplace environment (pooled RR 1.28; CI 1.07-1.55), keyboard position close to the body [pooled RR 1.46; (CI 1.07-1.99)], low work task variation [RR 1.27; CI (1.08-1.50)] and self-perceived medium/high muscular tension (pooled RR 2.75/1.82; CI 1.60 /1.14-4.72/2.90) were found to be risk factors for the development of neck pain.

**CONCLUSIONS:**

This review found evidence for a few number of physical risk factors for the development of neck pain, however, there was also either limited or conflicting factors. Recommendations for future studies evaluating risk factors are reported and how these may contribute to the prevention of neck pain in office workers.

**55. SCOLIOSIS****Activity and scoliosis**

J Bone Joint Surg Am. 2017 Feb 15;99(4):284-294. doi: 10.2106/JBJS.16.00459.

**Physical Activities and Lifestyle Factors Related to Adolescent Idiopathic Scoliosis.**

Watanabe K<sup>1</sup>, Michikawa T, Yonezawa I, Takaso M, Minami S, Soshi S, Tsuji T, Okada E, Abe K, Takahashi M, Asakura K, Nishiwaki Y, Matsumoto M.

Author information

Abstract

**BACKGROUND:**

In addition to genetic factors, environmental and lifestyle factors are thought to play an important role in the onset of adolescent idiopathic scoliosis (AIS). This cross-sectional study was conducted to explore lifestyle factors related to AIS.

**METHODS:**

This study included 2,759 Japanese female junior high school students who planned a secondary screening after an initial moiré topography screening indicated possible scoliosis. The students and their mothers, or guardians, were asked to fill out a questionnaire consisting of 38 questions about demographic factors, lifestyle-related factors, social factors, household environment, participation in sports, health status, and factors related to the mother's pregnancy and delivery. The questionnaire was completed by 2,747 students (a 99.6% response rate). After excluding students with heart disease, neurological disease, or a congenital vertebral anomaly, 2,600 students were eligible for assessment. After undergoing a secondary screening with standing radiographs of the spine, students were assigned to the normal (control) group if radiographs showed a curve of  $<15^\circ$  or to the scoliosis group if they had a curve of  $\geq 15^\circ$ . The odds ratios (ORs) for AIS in relation to the possible risk or preventive factors were estimated by logistic regression analyses.

**RESULTS:**

No lifestyle-related factor was significantly associated with AIS. However, AIS was associated with classical ballet training (OR, 1.38; 95% confidence interval [CI], 1.09 to 1.75); the odds of AIS developing increased as the child's frequency of training, number of years of experience, and duration of training in ballet increased. The OR for AIS was 1.5 times higher for participants whose mothers had scoliosis. AIS was also associated with a low body mass index (BMI). These associations remained even after mutual adjustment was performed.

**CONCLUSIONS:**

No association was found between AIS and lifestyle-related factors. However, classical ballet training, a family history of scoliosis, and low BMI may be associated with AIS.

**LEVEL OF EVIDENCE:**

Prognostic Level III. See Instructions for Authors for a complete description of levels of evidence.

### 56. ATHLETICS

#### Swimmers shoulders

#### **The incidence and risk factors of shoulder pain in junior competitive swimmers**

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British Journal of Sports Medicine, 02/21/2017

Suzuki Y, et al.

The clinicians intend to determine the risk factors related to shoulder pain and its prevention in junior competitive swimmers. This study demonstrated that low shoulder flexibility was significantly associated with shoulder pain. To apply these findings practically to recognize swimmers who might be at increased risk of developing shoulder pain and the use of proper preventive programs may prevent shoulder pain.

**Exercise and hunger****Individual variation in hunger, energy intake, and ghrelin responses to acute exercise**

Medicine and Science in Sports and Exercise, 02/20/2017

King JA, et al.

The focus of this study was to portray the immediate and extended effect of acute exercise on hunger, energy consumption and circulating acylated ghrelin concentrations utilizing a large dataset of homogenous experimental trials; and to depict the variety in responses between individuals. In young men, acute exercise suppresses hunger and circulating acylated ghrelin concentrations with notable diversity between individuals. Care must be taken to recognize true inter-individual variety from random differences within normal limits.

**Methods**

- Information from 17 of their group's experimental crossover trials were aggregated yielding a total sample of 192 young, healthy, males.
- In these studies, single bouts of moderate to high-intensity aerobic exercise ( $69 \pm 5\%$  VO<sub>2</sub> peak; mean  $\pm$  SD) were finished with detailed participant evaluations occurring amid and for several hours post-exercise.
- Mean hunger ratings were determined amid ( $n = 178$ ) and after ( $n = 118$ ) exercise from visual analogue scales finished at 30 min intervals whilst ad libitum energy consumption was measured within the first hour after exercise ( $n = 60$ ) and at multiple meals ( $n = 128$ ) amid the remainder of trials.
- Venous concentrations of acylated ghrelin were determined at strategic time points amid ( $n = 118$ ) and after ( $n = 89$ ) exercise.

**Results**

- At group-level, exercise transiently suppressed hunger ( $P < 0.010$ ; Cohen's  $d = 0.77$ ) however did not influence energy consumption.
- Acylated ghrelin was suppressed amid exercise ( $P < 0.001$ ; Cohen's  $d = 0.10$ ) and remained significantly lower than control (no exercise) afterwards ( $P < 0.024$ ; Cohen's  $d = 0.61$ ).
- Between participants, there were notable differences in responses however a large proportion of this spread lay inside the boundaries of normal variety related to biological and technical assessment error.

**59. PAIN****Brain changes in pain**

Eur J Pain. 2017 Feb 1. doi: 10.1002/ejp.1003

**Brain changes associated with cognitive and emotional factors in chronic pain: A systematic review.**

Malfliet A<sup>1,2,3,4</sup>, Coppieters I<sup>2,4</sup>, Van Wilgen P<sup>1,2,5</sup>, Kregel J<sup>2,4</sup>, De Pauw R<sup>4</sup>, Dolphens M<sup>4</sup>, Ickmans K<sup>1,2,3</sup>.

Author information

Abstract

An emerging technique in chronic pain research is MRI, which has led to the understanding that chronic pain patients display brain structure and function alterations. Many of these altered brain regions and networks are not just involved in pain processing, but also in other sensory and particularly cognitive tasks. Therefore, the next step is to investigate the relation between brain alterations and pain related cognitive and emotional factors. This review aims at providing an overview of the existing literature on this subject. Pubmed, Web of Science and Embase were searched for original research reports. Twenty eight eligible papers were included, with information on the association of brain alterations with pain catastrophizing, fear-avoidance, anxiety and depressive symptoms. Methodological quality of eligible papers was checked by two independent researchers. Evidence on the direction of these associations is inconclusive. Pain catastrophizing is related to brain areas involved in pain processing, attention to pain, emotion and motor activity, and to reduced top-down pain inhibition. In contrast to pain catastrophizing, evidence on anxiety and depressive symptoms shows no clear association with brain characteristics. However, all included cognitive or emotional factors showed significant associations with resting state fMRI data, providing that even at rest the brain reserves a certain activity for these pain-related factors. Brain changes associated with illness perceptions, pain attention, attitudes and beliefs seem to receive less attention in literature.

***SIGNIFICANCE:***

This review shows that maladaptive cognitive and emotional factors are associated with several brain regions involved in chronic pain. Targeting these factors in these patients might normalize specific brain alterations.

**Expectation of pain and response**

Pain. 2017 Jan 27. doi: 10.1097/j.pain.0000000000000859.

**Does expecting more pain make it more intense? Factors associated with the first week pain trajectories after breast cancer surgery.**

Sipilä RM<sup>1</sup>, Haasio L, Meretoja TJ, Ripatti S, Estlander AM, Kalso EA.

Author information

## Abstract

The aim of this study was to identify clinical risk factors for unfavorable pain trajectories after breast cancer surgery in order to better understand the association between pain expectation, psychological distress, and acute postoperative pain. This prospective study included 563 women treated for breast cancer. Psychological data included questionnaires for depressive symptoms and anxiety. Experimental pain tests for heat and cold were performed before surgery. The amount of oxycodone needed for satisfactory pain relief after surgery was recorded. Pain intensity in the area of operation before surgery and during the first postoperative week, and expected intensity of postoperative pain were recorded using the Numerical Rating Scale (NRS 0-10). Pain trajectories were formed to describe both initial intensity (the intercept), and the direction of the pain path (the slope). Factors associated with higher initial pain intensity (the intercept) were: amount of oxycodone needed for adequate analgesia, psychological distress, type of axillary surgery, preoperative pain in the area of the operation, and expectation of postoperative pain. The higher the pain initially was, the faster it resolved over the week. Expectation of severe postoperative pain was associated with higher scores of both experimental and clinical pain intensity and psychological factors.

The results confirm that acute pain after breast cancer surgery is a multidimensional phenomenon. Psychological distress, pain expectation, and the patients' report of preoperative pain in the area to be operated should be recognized before surgery. Patients having axillary clearance need more efficient analgesic approaches.



**Central changes with chronic pain**

Brain Stimul. 2016 Jul-Aug;9(4):488-500. doi: 10.1016/j.brs.2016.03.020. Epub 2016 Apr 4.

**Is Motor Cortical Excitability Altered in People with Chronic Pain? A Systematic Review and Meta-Analysis.**

Parker RS<sup>1</sup>, Lewis GN<sup>2</sup>, Rice DA<sup>3</sup>, McNair PJ<sup>2</sup>.

Author information

Abstract

**BACKGROUND:**

Chronic pain is characterised by maladaptive neuroplasticity in many systems, including the motor system. There is evidence that patients with chronic pain demonstrate altered corticospinal and intracortical excitability; however, findings are inconsistent and existing literature in this area has not been systematically reviewed.

**OBJECTIVE:**

To systematically review studies examining corticospinal and intracortical excitability using transcranial magnetic stimulation in people with chronic pain compared to healthy controls and to provide a meta-analysis of study outcomes.

**METHODS:**

Databases were searched for controlled studies evaluating corticospinal and intracortical excitability in chronic pain conditions. Outcome measure data were entered into separate meta-analyses and effect sizes calculated. A subgroup analysis based on the type of chronic pain population was also performed.

**RESULTS:**

Forty-three studies were included, encompassing a pooled total of 1009 people with chronic pain and 658 control participants. Significant effect sizes ( $P < 0.05$ ) indicated that in chronic pain populations the duration of the silent period and the extent of short-interval intracortical inhibition were both reduced and short-interval intracortical facilitation was enhanced. The subgroup analysis revealed that only the neuropathic pain group exhibited significant effect sizes for these outcome measures. Effect sizes for the remaining outcome measures were not significant

**CONCLUSIONS:**

There is evidence of motor cortex disinhibition in chronic pain populations, suggestive of a disruption in GABA-mediated intracortical inhibition. Disinhibition was more pronounced in populations with neuropathic pain. These findings provide new insights into the relationship between chronic pain and motor cortex excitability, which may have meaningful implications for the future treatment of chronic pain conditions

**Pictures and chronic pain**

J Pain. 2017 Feb;18(2):124-131. doi: 10.1016/j.jpain.2016.10.007. Epub 2016 Nov 2.

**Valence and Arousal Value of Visual Stimuli and Their Role in the Mitigation of Chronic Pain: What Is the Power of Pictures?**

Shaygan M<sup>1</sup>, Böger A<sup>2</sup>, Kröner-Herwig B<sup>3</sup>.

Author information

Abstract

The present study investigated the pain-reducing effects of various pictures in a sample of 88 patients receiving inpatient treatment for chronic pain. We investigated whether the pain-attenuating effects of the pictures were mediated by picture valence, arousal, or change in subjective social support. The study was carried out over 4 consecutive days. Patients were presented with photographs of loved ones, strangers, landscapes, or optical illusions via digital albums and were asked to rate their pain intensity and their sensory and affective experience of pain immediately before and after viewing the pictures. They also evaluated the valence of the pictures and the extent to which they were arousing. Before and after participation in the study, patients provided information on their subjective social support. The valence attributed to the pictures varied; photographs of loved ones elicited the greatest pleasure. Pictures of varying emotional content and arousal value all reduced affective and sensory perceptions of pain. Viewing photographs of loved ones reduced pain intensity more than viewing other picture types. The association between picture type and decrease in pain intensity was mediated by picture valence. These findings suggest an easy to implement supplementary intervention that could be used in multidisciplinary pain treatment.

***PERSPECTIVE:***

To our knowledge, this is the first demonstration that pictures mitigate pain in chronic pain patients receiving treatment in a multidisciplinary pain center. The procedure could be used routinely to treat pain, particularly severe pain.

**Neuropathic pain and catastrophizing**

Pain. 2016 Sep;157(9):1946-1953. doi: 10.1097/j.pain.0000000000000594.

**The reciprocal associations between catastrophizing and pain outcomes in patients being treated for neuropathic pain: a cross-lagged panel analysis study.**

Racine M<sup>1</sup>, Moulin DE, Nielson WR, Morley-Forster PK, Lynch M, Clark AJ, Stitt L, Gordon A, Nathan H, Smyth C, Ware MA, Jensen MP.

Author information

Abstract

Catastrophizing is recognized as a key psychosocial factor associated with pain-related negative outcomes in individuals with chronic pain.

Longitudinal studies are needed to better understand the temporal relationship between these constructs. The aim of this study was to determine if changes in catastrophizing early in treatment predicted subsequent changes in pain intensity and interference later in treatment, or alternately, if early changes in pain intensity and interference predicted subsequent changes in catastrophizing. A total of 538 patients with neuropathic pain were recruited from 6 multidisciplinary pain clinics across Canada. Study participants were asked to complete measures of catastrophizing, pain intensity, and interference when first seen in the clinic and then again at 3- and 6-month follow-ups. Cross-lagged panel analyses were used to determine the temporal associations among the study variables. The results showed that decreases in catastrophizing early in treatment prospectively predicted improvement in both pain intensity and interference later in treatment. Converse temporal relationships were also found, where a reduction in pain intensity and interference early in treatment predicted a subsequent diminishing of catastrophizing. All 4 unique cross-lagged correlations significantly accounted for an additional 4% to 7% of the total variance.

The findings are consistent with theoretical models hypothesizing a causal impact of catastrophizing on pain, suggesting a mutual causation between these factors. The results support that treatments targeting catastrophizing may influence other pain-related outcomes, and conversely that treatments aiming to reduce pain could potentially influence catastrophizing. There may therefore be multiple paths to positive outcomes.

### Use of alternative therapies in adolescents in pain

#### Complementary and alternative medicine use by children with pain in the United States

Academic Pediatrics, 02/23/2017

Groenewald CB, et al.

**T**his study highlights the prevalence of complementary and alternative medicine (CAM) use by children with pain in the United States. Accumulated data represents that CAM is frequently used by children with pain in the USA and many parents report benefits for their child's symptoms.

#### Methods

- The physicians evaluated data from the 2012 National Health Interview Survey (NHIS) to estimate patterns, predictors, and perceived benefits of CAM use among children 4–17 years of age with and without painful conditions in the US.
- They used  $\chi^2$  tests to compare the prevalence rates of CAM use among children with pain to CAM use among children without pain.
- Multivariable logistic regression was used to examine factors associated with CAM use within the group of children with pain conditions.

#### Results

- Parents reported that 26.6% of children had pain conditions (e.g. headache, abdominal, musculoskeletal pain) in the past year; of these children, 21.3% used CAM.
- In contrast only 8.1% of children without pain conditions used CAM ( $\chi^2$ :  $p < .001$ ).
- CAM use among children with pain was associated with female sex (adjusted odds ratio (aOR)=1.49,  $p=0.005$ ), higher income (aOR=1.61,  $p=0.027$ ), and presence of 4+ comorbidities (aOR=2.01,  $p=0.013$ ).
- Among children with pain who used CAM the 2 most commonly used CAM modalities were biologically-based therapies (47.3%) (e.g., special diets and herbal supplements) and manipulative or body-based therapies (46.3%) (e.g., chiropractic and massage).

**62 A. NUTRITION/VITAMINS****Whole grains and energy**

Am J Clin Nutr. 2017 Feb 8. pii: ajcn139683. doi: 10.3945/ajcn.116.139683.

**Substituting whole grains for refined grains in a 6-wk randomized trial favorably affects energy-balance metrics in healthy men and postmenopausal women.**

Karl JP<sup>1</sup>, Meydani M<sup>1</sup>, Barnett JB<sup>1</sup>, Vanegas SM<sup>1</sup>, Goldin B<sup>2</sup>, Kane A<sup>2</sup>, Rasmussen H<sup>1</sup>, Saltzman E<sup>1</sup>, Vangay P<sup>3</sup>, Knights D<sup>4</sup>, Chen CO<sup>1</sup>, Das SK<sup>1</sup>, Jonnalagadda SS<sup>5</sup>, Meydani SN<sup>1</sup>, Roberts SB<sup>6</sup>.

Author information

**Abstract**

**Background:** The effect of whole grains on the regulation of energy balance remains controversial.

**Objective:** We aimed to determine the effects of substituting whole grains for refined grains, independent of body weight changes, on energy-metabolism metrics and glycemic control.

**Design:** The study was a randomized, controlled, parallel-arm controlled-feeding trial that was conducted in 81 men and postmenopausal women [49 men and 32 women; age range: 40-65 y; body mass index (in kg/m<sup>2</sup>): <35.0]. After a 2-wk run-in period, participants were randomly assigned to consume 1 of 2 weight-maintenance diets for 6 wk. Diets differed in whole-grain and fiber contents [mean  $\pm$  SDs: whole grain-rich diet: 207  $\pm$  39 g whole grains plus 40  $\pm$  5 g dietary fiber/d; refined grain-based diet: 0 g whole grains plus 21  $\pm$  3 g dietary fiber/d] but were otherwise similar. Energy metabolism and body-composition metrics, appetite, markers of glycemic control, and gut microbiota were measured at 2 and 8 wk.

**Results:** By design, body weight was maintained in both groups. Plasma alkylresorcinols, which are biomarkers of whole-grain intake, increased in the whole grain-rich diet group (WG) but not in the refined grain-based diet group (RG) (P-diet-by-time interaction < 0.0001). Beta  $\pm$  SE changes ( $\Delta$ WG compared with  $\Delta$ RG) in the resting metabolic rate (RMR) (43  $\pm$  25 kcal/d; P = 0.04), stool weight (76  $\pm$  12 g/d; P < 0.0001), and stool energy content (57  $\pm$  17 kcal/d; P = 0.003), but not in stool energy density, were higher in the WG. When combined, the favorable energetic effects in the WG translated into a 92-kcal/d (95% CI: 28, 156-kcal/d) higher net daily energy loss compared with that of the RG (P = 0.005). Prospective consumption (P = 0.07) and glycemia after an oral-glucose-tolerance test (P = 0.10) trended toward being lower in the WG than in the RG. When nonadherent participants were excluded, between-group differences in stool energy content and glucose tolerance increased, and between-group differences in the RMR and prospective consumption were not statistically significant.

**Conclusion:** These findings suggest positive effects of whole grains on the RMR and stool energy excretion that favorably influence energy balance and may help explain epidemiologic associations between whole-grain consumption and reduced body weight and adiposity. This trial was registered at [clinicaltrials.gov](http://clinicaltrials.gov) as [NCT01902394](https://clinicaltrials.gov/ct2/show/study/NCT01902394).

**Milk intake and mortality****Milk, fruit and vegetable, and total antioxidant intakes in relation to mortality rates: cohort studies in women and men**

American Journal of Epidemiology, 02/20/2017

Michaelsson K, et al.

In this study, researchers intended to figure out if higher mortality rates with high milk intake are modified by fruit and vegetable consumption or total antioxidant consumption (oxygen radical absorbance capacity). This study revealed that the dietary antioxidant consumption, particularly in women, appears to modify the elevated death rate related to high milk intake.

- For this study they utilized data from food frequency questionnaires finished by 61,420 women in a Swedish cohort (22,391 deaths from the 1987–1990 baseline onward), 36,714 women from a second survey (1997) of this cohort, and 45,280 Swedish men (15,478 deaths from the 1998 baseline onward).
- Compared with low intake of milk (<1 glass/day) and high intake of fruits/vegetables ( $\geq 5$  servings/day), time–updated data uncovered an adjusted hazard ratio for death of 2.79 (95% confidence interval (CI): 2.42, 3.21) in women who consumed  $\geq 3$  glasses of milk/day and <1 serving/day of fruit/vegetables and a hazard ratio of 1.60 (95% CI: 1.40, 1.82) in women who consumed the same amount of milk but  $\geq 5$  servings/day of fruits/vegetables.
- The same comparisons in men, based on a single food frequency questionnaire, displayed hazard ratios of 1.31 (95% CI: 1.14, 1.51) and 1.07 (95% CI: 0.97, 1.18), respectively.
- Total antioxidant intake demonstrated similar patterns as fruit/vegetable consumption

## Vit D and CA

Rev Endocr Metab Disord. 2017 Feb 17. doi: 10.1007/s11154-017-9415-2.

**The roles of UVB and vitamin D in reducing risk of cancer incidence and mortality: A review of the epidemiology, clinical trials, and mechanisms.**

Moukayed M<sup>1</sup>, Grant WB<sup>2</sup>.

Author information

Abstract

Global cancer incidence and mortality rates are high and increasing. Thus, it is imperative to find novel solutions to preventing cancer incidence and treating it at an affordable yet efficacious manner. The solar UVB-vitamin D-cancer hypothesis was first proposed in 1980 based on a geographical ecological study. Since then, numerous ecological and observational studies as well as studies of mechanisms have provided support for the hypothesis. However, observational studies have not provided consistent support, in part due to using a single blood draw from any season to use for serum 25-hydroxyvitamin D [25(OH)D] concentration in prospective studies with long follow-up times. Case-controls studies, in which blood is drawn near time of diagnosis, and prospective studies in which blood is drawn in the sunnier half of the year, are more likely to find significant inverse relations between 25(OH)D and cancer incidence. Three vitamin D plus calcium clinical trials have found significant reduction in all-cancer incidence. This paper reviews the evidence for vitamin D in reducing incidence of and increasing survival from breast, colorectal, lung, ovarian, pancreatic, and prostate cancer. The epidemiological evidence provides strong support for all of these types of cancer except for non-aggressive prostate cancer. Studies of the cellular mechanisms of vitamin D action in different cancer cell types, strongly indicate that vitamin D can exert protective and anti-tumorigenic activities that would retard cellular transformation, hyperplasia and cancer progression.

Based on the scientific evidence reviewed in this paper, individuals and health providers can consider increasing 25(OH)D concentrations through sensible sun exposure and/or vitamin D supplementation to reduce risk of and, in conjunction with standard care, treat cancer. Public health acceptance of vitamin D for cancer prevention and treatment requires stronger support from vitamin D clinical trials.

**Cognitive decline and diet**

Exp Gerontol. 2017 Feb 14. pii: S0531-5565(16)30188-7. doi: 10.1016/j.exger.2017.02.008.

**n-3 Fatty acids, Mediterranean diet and cognitive function in normal aging: A systematic review.**

Masana MF<sup>1</sup>, Koyanagi A<sup>2</sup>, Haro JM<sup>2</sup>, Tyrovolas S<sup>3</sup>.

Author information

Abstract

**BACKGROUND:**

Intake of n-3 fatty acids and adherence to the Mediterranean diet (MedDiet) have been shown to slow the progression of age-related cognitive decline, but the results are mixed. We summarized and evaluated the effect of n-3 fatty acids and MedDiet on cognitive outcomes in a cognitively healthy aged population.

**METHODS:**

Relevant published studies from January 2000 to May 2015 were identified by searching three electronic databases: Pubmed, Web of Science/MEDLINE, and CINHAL. Observational studies and randomized controlled trials (RCTs) were considered.

**RESULTS:**

Twenty-four studies were included for the systematic review. n-3 Fatty acids were associated with better global cognition and some specific cognitive domains though some results were conflicting. Adherence to the MedDiet was also significantly associated with better cognitive performance and less cognitive decline. Finally, better cognitive performance was observed in men compared to women and conflicting results were also found for the influence of APOE4 genotype on the association between n-3 fatty acids or MedDiet and cognition.

**CONCLUSIONS:**

Studies suggest that n-3 fatty acids in the diet and adherence to the MedDiet are beneficial in slowing age-related cognitive decline. However, more high-quality RCTs would be useful to clarify the effect of n-3 fatty acid supplements on cognition.



**63. PHARMACOLOGY****Pot and Opioid use****Medical marijuana policies and hospitalizations related to marijuana and opioid pain reliever**Yuyan ShiDOI: <http://dx.doi.org/10.1016/j.drugalcdep.2017.01.006>**Highlights**

- Hospitalizations related to marijuana and opioid have risen by 300%.
- Medical marijuana legalization reduced opioid-related hospitalizations.
- Medical marijuana legalization had no impacts on marijuana-related hospitalizations.

**Abstract****Objectives**

Twenty-eight states in the U.S have legalized medical marijuana, yet its impacts on severe health consequences such as hospitalizations remain unknown. Meanwhile, the prevalence of opioid pain reliever (OPR) use and outcomes has increased dramatically. Recent studies suggested unintended impacts of legalizing medical marijuana on OPR, but the evidence is still limited. This study examined the associations between state medical marijuana policies and hospitalizations related to marijuana and OPR.

**Methods**

State-level annual administrative records of hospital discharges during 1997-2014 were obtained from the State Inpatient Databases (SID). The outcome variables were rates of hospitalizations involving marijuana dependence or abuse, opioid dependence or abuse, and OPR overdose in 1,000 discharges. Linear time-series regressions were used to assess the associations of implementing medical marijuana policies to hospitalizations, controlling for other marijuana- and OPR-related policies, socioeconomic factors, and state and year fixed effects.

**Results**

Hospitalizations related to marijuana and OPR increased sharply by 300% on average in all states. Medical marijuana legalization was associated with 23% ( $p=.008$ ) and 13% ( $p=.025$ ) reductions in hospitalizations related to opioid dependence or abuse and OPR overdose, respectively; lagged effects were observed after policy implementation. The operation of medical marijuana dispensaries had no independent impacts on OPR-related hospitalizations. Medical marijuana policies had no associations with marijuana-related hospitalizations.

**Conclusion**

Medical marijuana policies were significantly associated with reduced OPR-related hospitalizations but had no associations with marijuana-related hospitalizations. Given the epidemic of problematic use of OPR, future investigation is needed to explore the causal pathways of these findings.