

Table of Contents

2. LBP ..... 3

Spinal stenosis..... 3

    Methods .....4

    Results .....4

    Conclusion.....4

    Trial registration .....4

    Purpose This study is designed to test the authors' hypothesis that the radiologist's reports from multiple imaging centers performing a lumbar MRI exam on the same patient over a short period of time will have (1) marked variability in interpretive findings and (2) a broad range of interpretive errors. ....6

Maternal vitamin D biomarkers are associated with maternal and fetal bone turnover among pregnant women consuming controlled amounts of vitamin D, calcium, and phosphorus ..... 8

    Highlights .....8

    Abstract .....8

    Methods..... 15

    Results ..... 15

    Results ..... 16

        Data Sources ..... 19

        Study Selection ..... 19

        Data Extraction ..... 19

        Data Synthesis..... 19

        Conclusions..... 19

Exercise induced hypoalgesia is elicited by isometric, but not aerobic exercise in individuals with chronic whiplash associated disorders ..... 20

    Highlights ..... 20

    Abstract ..... 20

Maxillomandibular advancement for obstructive sleep apnea syndrome treatment: Long-term results ..... 23

    Summary ..... 23

21. ADHESIVE CAPSULITIS ..... 27

Does ultrasound therapy add to the effects of exercise and mobilization in frozen shoulder? A pilot randomized double-blind clinical trial ..... 27

    Objective ..... 27

## ABSTRACTS

Design .....	27
Results .....	27
Conclusion.....	27
Incidence, prevalence, natural course and prognosis of patellofemoral osteoarthritis: the Cohort Hip and Cohort Knee study .....	32
Summary.....	33
Objective.....	33
Design.....	33
Results .....	33
Conclusions.....	33
The relationship between foot and ankle symptoms and risk of developing knee osteoarthritis: Data from the osteoarthritis initiative .....	35
Methods.....	36
Results .....	36
Exercise induced hypoalgesia is elicited by isometric, but not aerobic exercise in individuals with chronic whiplash associated disorders .....	44
Highlights .....	44
Abstract .....	44
Comorbidities that cause pain and the contributors to pain in individuals with chronic obstructive pulmonary disease.....	48
Author information.....	48
Abstract.....	48
Methods.....	50
Results .....	50

**2. LBP****Spinal stenosis**

Spine (Phila Pa 1976). 2016 Dec 15;41(24):E1434-E1443.

**Clinical and Radiological Study Focused on Relief of Low Back Pain After Decompression Surgery in Selected Patients With Lumbar Spinal Stenosis Associated With Grade I Degenerative Spondylolisthesis.**

Ikuta K<sup>1</sup>, Masuda K, Tominaga F, Sakuragi T, Kai K, Kitamura T, Senba H, Shidahara S.  
Author information

Abstract

*STUDY DESIGN:*

A retrospective study.

*OBJECTIVE:*

The aim of the present study was to identify the clinical and radiological features of low back pain (LBP) that was relieved after decompression alone of lumbar spinal stenosis (LSS) associated with grade I lumbar degenerative spondylolisthesis (LDS).

*SUMMARY OF BACKGROUND DATA:*

Although decompression and fusion are generally the recommended surgical treatments of LDS, several authors have reported that some patients with LDS could obtain good clinical results including relief from LBP by decompression alone. The pathogenesis of relief from LBP after decompression is, however, not known.

*METHODS:*

Forty patients with LSS associated with grade I LDS, who underwent a minimally invasive surgical-decompression were enrolled in the present study. All patients complained preoperatively of predominantly leg-related symptoms and LBP ( $\geq 4$  points on Numeric Rating Scale). Clinical and radiological assessments were performed 1 year after surgery (a relief of LBP: Numeric Rating Scale reduction  $\geq 3$  points and valuation  $\leq 3$  points) and at the last follow-up. We conducted a comparative study between patient groups with and without the relief from LBP (groups R and N, respectively).

*RESULTS:*

Twenty-nine patients were distributed to group R and the remaining 11 patients to group N. Preoperatively, there was a significant difference between the two groups for age and radiographic flexibility for lumbar extension. Postoperatively, there was a positive correlation between improvement in both LBP and leg symptoms. The clinical outcomes of group R were significantly better than those of group N throughout follow-up period (mean 37 mo). In group R, sagittal lumbopelvic radiographic parameters improved significantly after surgery.

*CONCLUSION:*

Although the causes of LBP are varied in each patients, our results show that concomitant LSS itself might cause LBP in some patients with grade I LDS, because it involves impingement of the neural tissue and discordant sagittal lumbopelvic alignment.

**Obesity and LBP****The effect of obesity on treatment outcomes for low back pain**

Stanley C. Ewal Eric L. Hurwitz and Anupama Kizhakkeveetil  
*Chiropractic & Manual Therapies*2016**24**:48

**DOI:** 10.1186/s12998-016-0129-4

**Background**

The objective of this study was to estimate the effect of obesity, as measured by body mass index (BMI), on treatment outcomes for low back pain (LBP).

**Methods**

Data from the University of California, Los Angeles, and Friendly Hills Healthcare Network low back pain study (collected from 1995 to 2000) were used to perform a secondary data analysis of this randomized clinical trial on adults who sought care for LBP. BMI was the primary predictor variable. Binary logistic regression modeling was performed to estimate odds ratios adjusted for the effects of confounders.

**Results**

Using normal weight as the referent population, underweight and overweight populations did not display significant odds ratios for any of the outcome variables. The obese population demonstrated odds ratios of 0.615 (0.379, 0.998) for improvement of disability and 0.550 (0.341, 0.889) for improvement of most severe back pain.

**Conclusion**

The results of this study support an association between obesity and less effective treatment outcomes whether measured by disability (Roland-Morris scale) or pain (most severe pain NRS). Overweight and underweight populations do not appear to have significantly different outcomes than normal weight populations.

**Trial registration**

This trial was designed and conducted prior to the advent of registries.

**Attention to respiration****Attention-demand effects on respiration in chronic low back pain patients**

Babak Goosheh Majid Ravanbakhsh Mahyar Salavati Ismail Ebrahimi Takamjani  
Behnam Akhbari Amir Hossein Kahlaee

DOI: <http://dx.doi.org/10.1016/j.jbmt.2016.11.016>

**Abstract**

Increasing attention is being drawn towards the involvement of systems other than the musculoskeletal one in the presence of low back pain (LBP).

Recent evidence suggests both cognitive and respiratory functions to be affected in LBP patients. The aim of this study was to compare the effect of performance of a cognitive task on the respiratory function in LBP patients with that in control participants. Capnography and spirometry parameters of 48 participants (24 in each group) were assessed under 3 cognitive loading conditions (no, easy and difficult cognitive task). The results showed that in both groups the respiratory function was significantly affected by the introduction of the cognitive task ( $p < 0.05$ ) and in the same manner ( $p > 0.05$ ). Capnography and spirometry variables alterations were significantly correlated in the no-LBP group ( $p < 0.05$ ) but there was no significant relationship between respiratory parameters and capnography and disability indices in the LBP group ( $p > 0.05$ ).

The findings of the current study suggest that while performing a cognitive task affects respiratory function, the possible differences of LBP patients and control participants may not be elicited under simple non-physically demanding postural conditions.

**MRI readings vary****Variability in diagnostic error rates of ten MRI centers performing lumbar spine MRI exams on the same patient within a three-week period**

Richard Herzog, MD, FACR Daniel R Elgort, PhD Adam E Flanders, MD Peter J. Moley, MD

DOI: <http://dx.doi.org/10.1016/j.spinee.2016.11.009>

**Abstract**

**Background Context** In today's healthcare climate, Magnetic Resonance Imaging (MRI) is often perceived as a commodity – a service where there are no meaningful differences in quality and thus an area in which patients can be advised to select a provider based on price and convenience alone. If this prevailing view is correct, then a patient should expect to receive the same radiological diagnosis regardless of which imaging center he or she visits or which radiologist reviews the examination. Based on their extensive clinical experience, the authors believe that this assumption is not correct and that it can negatively impact patient care, outcomes and costs.

**Purpose** This study is designed to test the authors' hypothesis that the radiologist's reports from multiple imaging centers performing a lumbar MRI exam on the same patient over a short period of time will have (1) marked variability in interpretive findings and (2) a broad range of interpretive errors.

**Study Design** A prospective observational study comparing the interpretive findings reported for one patient scanned at 10 different MRI centers over a period of three weeks to each other and to reference MRI exams performed immediately preceding and following the 10 MRI exams.

**Patient Sample** A 63-year old female with a history of low back pain and right L5 radicular symptoms.

**Methods** The complete set of interpretive findings from the 10 study MRI exams were tabulated and compared for variability and errors. Two of the authors, both subspecialist spine radiologists from different institutions, independently reviewed the reference exams and then came to a final diagnosis by consensus. Errors of interpretation in the study exams were considered present if a finding present or not present in the study exam's report was not present in the reference exams.

**Outcome Measures** Variability was quantified using percent agreement rates and Fleiss' Kappa statistic. Interpretive errors were quantified using true positive counts, false positive counts, false negative counts, true positive rate (sensitivity), and false negative rate (miss rate).

**Results** Across all 10 study exams there were 49 distinct findings reported related to the presence of a distinct pathology at a specific motion segment. Zero interpretive findings were reported in all 10 study exams and only one finding was reported in nine out of 10 study exams. 32.7% of the interpretive findings appeared only once across all 10 of the study exams' reports. A global Fleiss' Kappa statistic, computed across all reported findings, was  $0.20 \pm 0.06$ , indicating poor overall agreement on interpretive findings. The average interpretive error count in the study exams was  $12.5 \pm 3.2$  (both false positives and false negatives). The average false negative count per exam was  $10.9 \pm 2.9$  out of 25 and the average false positive count was  $1.6 \pm 0.9$ , which corresponds to an average true positive rate (sensitivity) of  $56.4\% \pm 11.7$  and miss rate of  $43.6\% \pm 11.7$ .

**Conclusions** This study found marked variability in the reported interpretive findings and a high prevalence of interpretive errors in the radiologists' reports of an MRI exam of the lumbar spine performed on the same patient at 10 different MRI centers over a short time period. As a result, the authors' conclude that where a patient obtains their MRI exam and which radiologist interprets the exam may have a direct impact on their radiologic diagnosis, subsequent choice of treatment and clinical outcome.

**Spondylosis**

BMC Musculoskelet Disord. 2016 Dec 1;17(1):493.

**Prevalence of lumbar spondylosis and its association with low back pain among community-dwelling Japanese women.**

Tsujimoto R<sup>1</sup>, Abe Y<sup>2</sup>, Arima K<sup>3</sup>, Nishimura T<sup>2</sup>, Tomita M<sup>1</sup>, Yonekura A<sup>1</sup>, Miyamoto T<sup>1</sup>, Matsubayashi S<sup>1</sup>, Tanaka N<sup>2</sup>, Aoyagi K<sup>2</sup>, Osaki M<sup>1</sup>.

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

Lumbar spondylosis is more prevalent among the middle-aged and elderly, but few population-based studies have been conducted, especially in Japan. The purpose of this study was to explore the prevalence of lumbar spondylosis and its associations with low back pain among community-dwelling Japanese women.

**METHODS:**

Lateral radiographs of the lumbar spine were obtained from 490 Japanese women  $\geq 40$  years old, and scored for lumbar spondylosis using the Kellgren-Lawrence (KL) grade at lumbar intervertebral level from L1/2 to L5/S1. Height and weight were measured, and body mass index (BMI) was calculated. Low back pain in subjects was assessed using a self-administered questionnaire. Stiffness index (bone mass) was measured at the calcaneal bone using quantitative ultrasound.

**RESULTS:**

Prevalence of radiographic lumbar spondylosis for  $KL \geq 2$ ,  $KL \geq 3$  and low back pain were 76.7%, 38.8% and 20.0%, respectively. Age was positively associated with radiographic lumbar spondylosis ( $KL = 2$ ,  $KL \geq 3$ ) and low back pain. Greater BMI was associated with lumbar spondylosis with  $KL = 2$ , but not with  $KL \geq 3$ . Stiffness index was associated with neither radiographic lumbar spondylosis nor low back pain. Multiple logistic regression analysis identified radiographic lumbar spondylosis ( $KL \geq 3$ ) at L3/4, L4/5 and L5/S1 was associated with low back pain, independent of age, BMI and stiffness index.

**CONCLUSION:**

Severe lumbar spondylosis at the middle or lower level may contribute to low back pain.

## 7. PELVIC ORGANS/WOMAN'S HEALTH

### Maternal Vit D intake and fetus health

#### **Maternal vitamin D biomarkers are associated with maternal and fetal bone turnover among pregnant women consuming controlled amounts of vitamin D, calcium, and phosphorus**

Heyjun Park Patsy M. Brannon Allyson A. West Jian Yan Xinyin Jiang Cydne A. Perry Olga Malysheva Saurabh Mehta Marie A. Caudill

#### **Highlights**

- Pregnancy induces a negative bone balance under adequate nutrient intakes.
- Higher vitamin D associates with lower maternal bone resorption during pregnancy.
- This reduction in maternal bone resorption does not influence fetal calcium supply.
- Higher vitamin D biomarkers may have benefits for bone health of pregnant women.

#### **Abstract**

Vitamin D plays a central role in calcium homeostasis; however, its relationship with bone turnover during pregnancy remains unclear due to a lack of studies that have rigorously controlled for other nutrients known to influence bone metabolism. Similarly, prior investigations of the effect of pregnancy on bone turnover relative to the nonpregnant state may have been confounded by varying intakes of these nutrients. Nested within a controlled intake study, the present investigation sought to quantify associations between maternal vitamin D biomarkers and biochemical markers of bone turnover among pregnant (versus nonpregnant) women and their fetuses under conditions of equivalent and adequate intakes of vitamin D and related nutrients. Changes in markers of bone turnover across the third trimester were also examined. Healthy pregnant (26 – 29 wk gestation; n = 26) and nonpregnant (n = 21) women consumed 511 IU vitamin D/d, 1.6 g calcium/d, and 1.9 g phosphorus/d for 10 weeks while participating in a controlled feeding study featuring two choline doses. Based on linear mixed models adjusted for influential covariates (e.g., BMI, ethnicity, and season), pregnant women had 50 – 150% higher ( $P < 0.001$ ) concentrations of bone resorption markers than nonpregnant women. Among pregnant women, increases in maternal 25(OH)D across the study period were associated ( $P < 0.020$ ) with lower osteocalcin and deoxypyridinoline at study-end, and higher fetal osteocalcin. In addition, maternal free 25(OH)D, 1,25(OH)<sub>2</sub>D, and 24,25(OH)<sub>2</sub>D tended to be negatively associated ( $P \leq 0.063$ ) with maternal NTx at study-end, and maternal free 25(OH)D and 24,25(OH)<sub>2</sub>D were positively associated ( $P \leq 0.021$ ) with fetal CTx. Similarly, maternal 3-epi-25(OH)D<sub>3</sub> was negatively related ( $P \leq 0.037$ ) to maternal NTx and deoxypyridinoline at study-end. These declines in bone resorption markers resulting from higher vitamin D biomarker concentrations among pregnant women coincided with increases in their albumin-corrected serum calcium concentrations, indicating that calcium transfer to the fetus was uncompromised. Notably, none of these associations achieved statistical significance among nonpregnant women. Overall, our study findings suggest that achieving higher maternal concentrations of vitamin D biomarkers might attenuate third-trimester bone resorption while ensuring sufficient calcium delivery to the fetus.



**Dietary patterns and weight gain**

Matern Child Health J. 2016 Dec;20(12):2527-2538.

**Dietary Patterns During Pregnancy are Associated with Gestational Weight Gain.**

Shin D<sup>1,2</sup>, Lee KW<sup>2</sup>, Song WO<sup>3</sup>.

Author information

**Abstract**

**Objective** The role of diet during pregnancy on gestational weight gain is unclear. This study aimed to evaluate the hypothesis that dietary patterns during pregnancy are differentially associated with the adequacy of gestational weight gain at different stages of pregnancy.

**Methods** A total of 391 pregnant women in National Health and Nutrition Examination Survey (NHANES) 2003-2006 were included. Dietary intake was obtained using a National Cancer Institute's food-frequency questionnaire.

**Results** Three dietary patterns were identified by factor analysis with 36 food groups among pregnant women, and they were named according to food group factor loadings: 'mixed', 'healthy', and 'western'. The 'mixed' pattern characterized by a high intake of meat, dairy products, fruits, vegetables, potatoes, nuts and seeds and sweets. After adjusting for maternal sociodemographic variables and physical activity level, women in the highest tertile of 'mixed' pattern score had significantly greater odds of being in the inadequate gestational weight gain compared to those in the lowest tertile (adjusted odds ratio (AOR) 4.72; 95 % CI 1.07-20.94). Women in the mid tertile of the 'mixed' pattern had significantly lower odds of being in the excessive gestational weight gain compared to those in the lowest tertile (AOR 0.39; 95 % CI 0.15-0.99).

**Conclusion** These results suggest that a diet high in meat, dairy products, fruits, vegetables, potatoes, and nuts and seeds during pregnancy might be associated with reducing excessive gestational weight gain.

**Antibiotic use and birth defects**

**Birth Defects Res A Clin Mol Teratol. 2016 Nov;106(11):940-949. doi: 10.1002/bdra.23570. Association between antibiotic use among pregnant women with urinary tract infections in the first trimester and birth defects, National Birth Defects Prevention Study 1997 to 2011.**

Ailes EC<sup>1</sup>, Gilboa SM<sup>1</sup>, Gill SK<sup>2</sup>, Broussard CS<sup>1</sup>, Crider KS<sup>1</sup>, Berry RJ<sup>1</sup>, Carter TC<sup>3</sup>, Hobbs CA<sup>4</sup>, Interrante JD<sup>1,5</sup>, Reefhuis J<sup>1</sup>; and The National Birth Defects Prevention Study.  
Author information

## Abstract

**BACKGROUND:**

Previous studies noted associations between birth defects and some antibiotics (e.g., nitrofurantoin, sulfonamides) but not others (e.g., penicillins). It is unclear if previous findings were due to antibiotic use, infections, or chance. To control for potential confounding by indication, we examined associations between antibiotic use and birth defects, among women reporting urinary tract infections (UTIs).

**METHODS:**

The National Birth Defects Prevention Study is a multi-site, population-based case-control study. Case infants/fetuses have any of over 30 major birth defects and controls are live-born infants without major birth defects. We analyzed pregnancies from 1997 to 2011 to estimate the association between maternally reported periconceptual (month before conception through the third month of pregnancy) use of nitrofurantoin, trimethoprim-sulfamethoxazole, or cephalosporins and specific birth defects, among women with periconceptual UTIs. Women with periconceptual UTIs who reported penicillin use served as the comparator.

**RESULTS:**

Periconceptual UTIs were reported by 7.8% (2029/26,068) of case and 6.7% (686/10,198) of control mothers. Most (68.2% of case, 66.6% of control mothers) also reported antibiotic use. Among 608 case and 231 control mothers reporting at least one periconceptual UTI and certain antibiotic use, compared with penicillin, nitrofurantoin use was associated with oral clefts in the offspring (adjusted odds ratio, 1.97 [95% confidence interval, 1.10-3.53]), trimethoprim-sulfamethoxazole use with esophageal atresia (5.31 [1.39-20.24]) and diaphragmatic hernia (5.09 [1.20-21.69]), and cephalosporin use with anorectal atresia/stenosis (5.01 [1.34-18.76]).

**CONCLUSION:**

Periconceptual exposure to some antibiotics might increase the risk for certain birth defects. However, because individual birth defects are rare, absolute risks should drive treatment decisions. Birth Defects Research (Part A) 106:940-949, 2016. © 2016 Wiley Periodicals, Inc.

**Dairy intake**

J Nutr. 2016 Nov 23. pii: jn241521.

**Dairy Food Intake Is Associated with Reproductive Hormones and Sporadic Anovulation among Healthy Premenopausal Women.**

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## Author information

## Abstract

**BACKGROUND:**

Dairy food intake has been associated with infertility; however, little is known with regard to associations with reproductive hormones or anovulation.

**OBJECTIVE:**

We investigated whether intakes of dairy foods and specific nutrients were associated with reproductive hormone concentrations across the cycle and the risk of sporadic anovulation among healthy women.

**METHODS:**

We prospectively measured serum reproductive hormones  $\leq 8$  times/menstrual cycle for 2 cycles from 259 regularly menstruating women (mean age: 27.3 y). Dairy food intake was assessed via 24-h dietary recalls 4 times/cycle. Dairy food intakes were assessed by 1) total and low- and high-fat dairy products; 2) dairy nutrients, including fat, lactose, calcium, and phosphorus; and 3) dairy foods, including milk, cheese, butter, cream, yogurt, and ice cream categories. Weighted linear mixed models were used to evaluate associations between dairy nutrients or food intakes and hormone concentrations. Modified Poisson regression models with robust error variance were used to evaluate anovulation. Models were adjusted for age, body mass index, race, physical activity, Mediterranean diet score, total energy, protein, fiber, caffeine, and other hormones.

**RESULTS:**

Each serving increase in total and low- and high-fat dairy foods and all increases in amounts of all dairy nutrients tested were associated with an  $\sim 5\%$  reduction in serum estradiol concentrations but were not associated with anovulation. Total and high-fat dairy food intakes were positively associated with serum luteinizing hormone concentrations. We observed associations between intakes of  $>0$  servings of yogurt (RR: 2.1; 95% CI: 1.2, 3.7) and cream (RR: 1.8; 95% CI: 1.0, 3.2) and a higher risk of sporadic anovulation compared with no intake.

**CONCLUSIONS:**

Our study showed associations between increasing dairy food and nutrient intakes and decreasing estradiol concentrations as well as between cream and yogurt intakes and the risk of sporadic anovulation. These results highlight the potential role of dairy in reproductive function in healthy women.

**Longevity and late birthing**

Am J Public Health. 2017 Jan;107(1):113-119. Epub 2016 Nov 17.

**Maternal Age at Childbirth and Parity as Predictors of Longevity Among Women in the United States: The Women's Health Initiative.**

Shadyab AH<sup>1</sup>, Gass ML<sup>1</sup>, Stefanick ML<sup>1</sup>, Waring ME<sup>1</sup>, Macera CA<sup>1</sup>, Gallo LC<sup>1</sup>, Shaffer RA<sup>1</sup>, Jain S<sup>1</sup>, LaCroix AZ<sup>1</sup>.

Author information

**Abstract****OBJECTIVES:**

To examine associations of maternal age at childbirth and parity with survival to age 90 years (longevity).

**METHODS:**

We performed a prospective study among a multiethnic cohort of postmenopausal US women in the Women's Health Initiative recruited from 1993 to 1998 and followed through August 29, 2014. We adjusted associations with longevity for demographic, lifestyle, reproductive, and health-related characteristics.

**RESULTS:**

Among 20 248 women (mean age at baseline, 74.6 years), 10 909 (54%) survived to age 90 years. The odds of longevity were significantly higher in women with later age at first childbirth (adjusted odds ratio = 1.11; 95% confidence interval = 1.02, 1.21 for age 25 years or older vs younger than 25 years; P for trend = .04). Among parous women, the relationship between parity and longevity was significant among White but not Black women. White women with 2 to 4 term pregnancies compared with 1 term pregnancy had higher odds of longevity.

**CONCLUSIONS:**

Reproductive events were associated with longevity among women. Future studies are needed to determine whether factors such as socioeconomic status explain associations between reproductive events and longevity.

**Breast pain**

Clin J Pain. 2017 Jan;33(1):51-56.

**Persistent Breast Pain Among Women With Histories of Breast-conserving Surgery for Breast Cancer Compared With Women Without Histories of Breast Surgery or Cancer.**

Edmond SN<sup>1</sup>, Shelby RA, Keefe FJ, Fisher HM, Schmidt JE, Soo MS, Skinner CS, Ahrendt GM, Manculich J, Sumkin JH, Zuley ML, Bovbjerg DH.

Author information

**Abstract****OBJECTIVES:**

This study compared persistent breast pain among women who received breast-conserving surgery for breast cancer and women without a history of breast cancer.

**METHODS:**

Breast cancer survivors (n=200) were recruited at their first postsurgical surveillance mammogram (6 to 15 mo postsurgery). Women without a breast cancer history (n=150) were recruited at the time of a routine screening mammogram. All women completed measures of breast pain, pain interference with daily activities and intimacy, worry about breast pain, anxiety symptoms, and depression symptoms. Demographic and medical information were also collected.

**RESULTS:**

Persistent breast pain (duration  $\geq 6$  mo) was reported by 46.5% of breast cancer survivors and 12.7% of women without a breast cancer history ( $P < 0.05$ ). Breast cancer survivors also had significantly higher rates of clinically significant persistent breast pain (pain intensity score  $\geq 3/10$ ), as well as higher average breast pain intensity and unpleasantness scores. Breast cancer survivors with persistent breast pain had significantly higher levels of depressive symptoms, as well as pain worry and interference, compared with survivors without persistent breast pain or women without a breast cancer history. Anxiety symptoms were significantly higher in breast cancer survivors with persistent breast pain compared with women without a breast cancer history.

**DISCUSSION:**

Results indicate that persistent breast pain negatively impacts women with a history of breast-conserving cancer surgery compared with women without that history. Strategies to ameliorate persistent breast pain and to improve adjustment among women with persistent breast pain should be explored for incorporation into standard care for breast cancer survivors.

## Menopausal disease

Hum Reprod. 2016 Dec;31(12):2856-2864. Epub 2016 Oct 18.

**Common diseases as determinants of menopausal age.**

Li J<sup>1</sup>, Eriksson M<sup>1</sup>, Czene K<sup>1</sup>, Hall P<sup>1</sup>, Rodriguez-Wallberg KA<sup>2,3</sup>.

Author information

Abstract

**STUDY QUESTION:** Can the diagnosis of common diseases before menopause influence age at natural menopause (ANM) onset?

**SUMMARY ANSWER:** Polycystic ovary syndrome (PCOS) and depression were observed to delay menopause.

**WHAT IS KNOWN ALREADY:** It has been observed that women who undergo early menopause experience a higher burden of health problems related to metabolic syndromes, heart disease and depression, but whether ANM can be influenced by common adult diseases has not been studied extensively.

**STUDY DESIGN, SIZE, DURATION:** All women attending mammography screening or clinical mammography at four hospitals in Sweden were invited to participate in the Karolinska Mammography Project for Risk Prediction of Breast Cancer (KARMA) study. Between January 2011 and March 2013, 70 877 women were recruited. Information from the baseline questionnaire filled out upon enrollment was used in this cross-sectional analysis on predictors of ANM onset.

**PARTICIPANTS/MATERIALS, SETTING, METHODS:** We limited our analyses to 61 936 women with complete data on ANM and covariates and a follow-up time (from birth to menopause or censoring) of at least 35 years. Premenopausal diagnoses of depression, anorexia, bulimia, PCOS, ovarian cyst, heart failure, myocardial infarction, angina pectoris, stroke, preeclampsia, diabetes, hypertension and hyperlipidemia were examined as time-dependent variables in multivariable Cox regression analyses, adjusting for reproductive factors (age at menarche, menstrual cycle regularity in adult life, number of children and premenopausal oral contraceptive use) and risk factors of common diseases (education, physical activity at 18 years and information at the time of questionnaire including BMI, ever smoking and alcohol consumption).

**MAIN RESULTS AND THE ROLE OF CHANCE:** Women with PCOS and depression were independently associated with later menopause (hazard ratio (95% CI): 0.44 (0.28-0.71) and 0.95 (0.91-1.00), respectively), compared to women with no such histories. The associations remained significant in a subset of women who had never received gynecological surgery or hormone treatment (n = 32313, 0.21 (0.08-0.50) and 0.91 (0.85-0.98), respectively). None of the other diseases examined were significantly associated with ANM.

**LIMITATIONS, REASONS FOR CAUTION:** Information from the questionnaire was self-reported, making recall possible, but it is unlikely that any bias was different in the strata of different factors considered. Misclassification could also have occurred in cases where the diagnoses of common diseases were close to age at last follow-up. In addition, observational studies cannot establish that the associations identified represent cause-and-effect relationships.

**WIDER IMPLICATIONS OF THE FINDINGS:** Our study is the first in examining multiple common diseases simultaneously as determinants of ANM. Contrary to previous reports, we did not find any significant accelerating effect of hypertension, cardiovascular disease and diabetes on ANM.

STUDY FUNDING/COMPETING INTERESTS: KARMA was financed by the Märta and Hans Rausing's Initiative Against Breast Cancer. K.R.W. is supported by the Swedish Society of Medicine and by Stockholm County Council. J.L. is a recipient of an Alex and Eva Wallström Foundation award. The authors declare that there is no conflict of interest regarding the publication of this paper

### 8. VISCERA

#### Celiac in children

#### **Abdominal pain-associated functional gastrointestinal disorder prevalence in children and adolescents with celiac disease on gluten-free diet: A multinational study**

The Journal of Pediatrics, 12/15/2016 Saps M, et al.

**T**his multinational study was designed to test the hypothesis that children with celiac disease (CD) on gluten-free diet are at increased risk of abdominal pain (AP) associated functional gastrointestinal disorders (FGIDs). The clinicians found that the subjects with CD and controls have a similar prevalence of chronic AP and AP-FGIDs. Hence, these findings indicate that not all types of gastrointestinal inflammation result in AP-FGIDs in children.

#### Methods

- This study was conducted from 2014 to 2015.
- The clinicians selected patients (4–18 years) with CD on gluten-free diet for longer than 6 months from pediatric CD clinics in US and Italy.
- Control groups included siblings of children with CD (with normal tissue transglutaminase levels) and unrelated controls.
- Subjects or parents completed the Questionnaire on Pediatric Gastrointestinal Symptoms–Rome III.

#### Results

- A total of 289 children were included (55% US, 45% Italy): 96 children with CD, 96 sibling controls, and 97 unrelated controls.
- Chronic AP was present in 30 (30.9%) subjects with CD, 22 (22.7%) sibling controls, and 21 (21.6%) unrelated controls ( $P = .26$  patients with CD vs siblings;  $P = .18$  patients with CD vs unrelated;  $P = .96$  siblings vs unrelated).
- AP-FGIDs were present in 8 (8.2%) subjects with CD, 8 (8.2%) sibling controls, and 2 (2.1%) unrelated controls ( $P = 1.00$  subjects with CD vs sibling controls;  $P = .06$  subjects with CD vs unrelated controls;  $P = .06$  sibling controls vs unrelated controls).

**IBS and depression****The association between irritable bowel syndrome and the coexistence of depression and insomnia**

Journal of Psychosomatic Research, 12/12/2016

Lee SK, et al. – Researchers attempted to investigate the relationship between irritable bowel syndrome (IBS) and the coexistence of depression and insomnia in a Korean population-based cohort study. It is concluded that the presence of both depression and insomnia is significantly connected with IBS compared to each individual occurrence.

**Methods**

- An aggregate of 3429 people who were selected in the Korean Genome and Epidemiology Study were examined.
- Of the members, 10.9% (n = 374) were diagnosed with IBS based on the Rome II criteria.
- Regarding depressive symptoms, subjects were sub-divided into 3 groups based on the Beck Depression Inventory (BDI) score.
- Insomnia was defined as a positive response to at least one of 3 questions on sleep states.

**Results**

- Researchers observed that the odds ratio (OR) of IBS raised proportionally as depressive symptoms worsened (OR: 1.64; 95% CI: 1.21 – 2.23 in middle tertile and OR: 2.61; 95% CI: 1.92 – 3.55 in highest tertile).
- It was observed in the findings that subjects with insomnia demonstrated a higher OR of IBS than those without insomnia (OR: 1.81; 95% CI: 1.44 – 2.27).
- In the joint analysis of BDI and insomnia, the odds for IBS were altogether higher in all BDI tertiles with insomnia than in the corresponding BDI tertiles without insomnia.
- This study found no significant interaction impact of BDI tertile or insomnia on IBS.



**Constipation**

Aliment Pharmacol Ther. 2016 Dec 1. doi: 10.1111/apt.13874.

**An expert consensus definition of failure of a treatment to provide adequate relief (F-PAR) for chronic constipation - an international Delphi survey.**

Tack J<sup>1</sup>, Boardman H<sup>2</sup>, Layer P<sup>3</sup>, Schiefke I<sup>4</sup>, Jayne D<sup>5</sup>, Scarpignato C<sup>6</sup>, Fox M<sup>7</sup>, Frieling T<sup>8</sup>, Ducrotte P<sup>9</sup>, Hamdy S<sup>10</sup>, Gill K<sup>11</sup>, Ciriza de Los Rios C<sup>12</sup>, Felt-Bersma R<sup>13</sup>, De Looze D<sup>14</sup>, Stanghellini V<sup>15</sup>, Drewes AM<sup>16</sup>, Simrén M<sup>17</sup>, Pehl C<sup>18</sup>, Hoheisel T<sup>19</sup>, Leodolter A<sup>20</sup>, Rey E<sup>12</sup>, Dalrymple J<sup>21</sup>, Emmanuel A<sup>2</sup>.

Author information

Abstract

**BACKGROUND:**

As treatments for constipation become increasingly available, it is important to know when to progress along the treatment algorithm if the patient is not better.

**AIM:**

To establish the definition of failure of a treatment to provide adequate relief (F-PAR) to support this management and referral process in patients with chronic constipation.

**METHODS:**

We conducted an international Delphi Survey among gastroenterologists and general practitioners with a special interest in chronic constipation. An initial questionnaire based on recognised rating scales was developed following a focus group. Data were collected from two subsequent rounds of questionnaires completed by all authors. Likert scales were used to establish a consensus on a shorter list of more severe symptoms.

**RESULTS:**

The initial focus group yielded a first round questionnaire with 84 statements. There was good consensus on symptom severity and a clear severity response curve, allowing 67 of the symptom-severity pairings to be eliminated. Subsequently, a clear consensus was established on further reduction to eight symptom statements in the final definition, condensed by the steering committee into five diagnostic statements (after replicate statements had been removed).

**CONCLUSIONS:**

We present an international consensus on chronic constipation, of five symptoms and their severities, any of which would be sufficient to provide clinical evidence of treatment failure. We also provide data representing an expert calibration of commonly used rating scales, thus allowing results of clinical trials expressed in terms of those scales to be converted into estimates of rates of provision of adequate relief.

## Asthma and appendicitis

Asthma and risk of appendicitis in children: A population-based case-control study  
 Academic Pediatrics, 12/09/2016 Hasassri ME, et al.

**T**his population-based case-control study was conducted to evaluate whether asthma is associated with risk of appendicitis in children. Evidence suggests that active asthma might be an unrecognized risk factor for appendicitis in children whereas a history of inactive asthma does not pose such risk. However, further likewise studies are required to explore the underlying mechanism.

### Methods

- The clinicians used a population-based case-control study design using a comprehensive medical record review and predetermined criteria for appendicitis and asthma.
- All children (age younger than 18 years of age) who resided in Olmsted County, Minnesota, and developed appendicitis between 2006 and 2012 were matched to controls (1:1) with regard to birthday, gender, registration date, and index date.
- Asthma status was ascertained using predetermined criteria.
- Active (current) asthma was defined as the presence of asthma symptoms or asthma-related events (eg, medication use, clinic visits, emergency department, or hospitalization) within 1 year before the index date. Inactive asthma was defined as subjects without these events.
- A conditional logistic regression model was used.

### Results

- Among the 309 appendicitis cases identified, when stratified according to asthma status, active asthma was associated with significantly increased risk of appendicitis compared with inactive asthma (odds ratio [OR] = 2.48; 95% confidence interval [CI], 1.22–5.03) and to no asthma (OR = 1.88; 95% CI, 1.07–3.27; overall P = .035).
- When controlling for potential confounders such as gender, age, and smoking status, active asthma was associated with a higher odds of developing appendicitis compared with nonasthmatic patients (adjusted OR = 1.75; 95% CI, 0.99–3.11) whereas inactive asthma was not (overall P = .049).
- Findings indicate that tobacco smoke exposure within 3 months was associated with an increased risk of appendicitis (adjusted OR = 1.66; 95% CI, 1.02–2.69).
- Among asthma medications, leukotriene receptor antagonists reduced the risk of appendicitis (OR = 0.18; 95% CI, 0.04–0.74).

## 10 A. CERVICAL SPINE

### ROM in neck pain

#### **To which degree differs active cervical range of motion between patients with neck pain, whiplash and healthy controls? A systematic review and meta-analysis**

Martijn S. Stenneberg, MSc Michiel Rood, MSc Rob de Bie, PhD Maarten A. Schmitt, PhD Erik Cattrysse, PhD Gwendolijne GM. Scholten-Peeters, PhD

#### **Objective**

To quantify differences in aCROM between patients with neck pain and healthy controls, in whiplash-associated disorders (WAD) and non-traumatic neck pain, and in patients with acute complaints versus those with chronic complaints.

#### **Data Sources**

Seven bibliographic databases were searched from inception to April 2015. In addition a manual search was performed.

#### **Study Selection**

Full papers on a numerical comparison of aCROM in patients with neck pain and healthy controls of similar ages were included. Two reviewers independently selected studies and assessed risk of bias.

#### **Data Extraction**

Two reviewers extracted the data. Pooled mean differences of aCROM were calculated using a random-effects model.

#### **Data Synthesis**

The search yielded 6261 hits; Twenty-seven articles (2366 participants, 13 low risk of bias) met the inclusion criteria. The neck pain group showed less aCROM in all movement directions compared to healthy controls. Mean differences ranged from  $-7.04^{\circ}$  [95% CI= $-9.70^{\circ}$ ,  $-4.38^{\circ}$ ] for right lateral bending (11 studies) to  $-89.59^{\circ}$  [95% CI= $-131.67^{\circ}$ ,  $-47.51^{\circ}$ ] for total aCROM (4 studies). Patients with WAD had less aCROM than patients with non-traumatic neck pain. No conclusive differences in aCROM were found between patients with acute and patients with chronic complaints.

#### **Conclusions**

Patients with neck pain have a significantly decreased aCROM compared to healthy controls and patients with WAD have less aCROM than those with non-traumatic neck pain.

## 12 A. WHIPLASH

### Isometric exercise

April 2017 Volume 15, Pages 14–21

#### Exercise induced hypoalgesia is elicited by isometric, but not aerobic exercise in individuals with chronic whiplash associated disorders

Ashley Smith Carrie Ritchie Ashley Pedler Kaitlin McCamle Kathryn Roberts  
Michele Sterling

#### Highlights

- An isometric wall squat exercise reduced pain sensitivity in individuals with chronic WAD.
- Thirty minutes of cycling did not increase pain sensitivity.
- Descending pain modulation was not associated with exercise induced hypoalgesia.
- Psychological factors were not associated with pain sensitivity following exercise.

#### Abstract

**Background and aims** Reduced pain sensitivity following exercise is termed exercise induced hypoalgesia (EIH). Preliminary evidence suggests that impairment of EIH is evident in individuals with whiplash associated disorders (WAD) following submaximal aerobic exercise. This study aimed to compare EIH responses to isometric and aerobic exercise in patients with chronic WAD and healthy controls and investigate relationships between EIH, conditioned pain modulation (CPM) and psychological factors in patients with chronic WAD.

**Methods** A cross sectional pre-post study investigated the effect of a single session of submaximal aerobic cycling exercise and a single session of isometric timed wall squat exercise on EIH in a group of participants with chronic WAD ( $n = 21$ ) and a group of asymptomatic control participants ( $n = 19$ ). Bivariate analyses between EIH and baseline measures of CPM and psychological features (fear of movement, pain catastrophization and posttraumatic stress symptoms) were also investigated.

**Results** The isometric wall squat exercise but not the aerobic cycling exercise resulted in EIH in both groups ( $P < .023$ ) with no between-group differences ( $P > .55$ ) demonstrated for either exercise. There were no significant associations measured between EIH (for either exercise performed), and CPM, or any of the psychological variables.

**Conclusions** This study showed that individuals with chronic WAD and mild to moderate pain and disability, and no evidence of dysfunctional CPM, demonstrated reduced pain sensitivity, both in the cervical spine and over the tibialis anterior following an isometric, timed wall squat exercise. Cycling exercise did not increase pain sensitivity.

**Implications** Individuals with chronic WAD and mild to moderate levels of neck pain and disability may experience less pain sensitivity both locally and remotely following an exercise program directed at non-painful muscles performing isometric exercises. Individuals cycling for 30 min at 75% of age-predicted heart rate maximum do not experience increased pain sensitivity.

## 12 B. CERVICAL SURGERIES

### Spondylolethisis

Spine (Phila Pa 1976). 2016 Dec 1;41(23):1808-1812.

#### **Clinical Outcome of Cervical Laminoplasty and Postoperative Radiological Change for Cervical Myelopathy With Degenerative Spondylolisthesis.**

Suzuki A<sup>1</sup>, Tamai K, Terai H, Hoshino M, Toyoda H, Takahashi S, Hayashi K, Ohyama S, Nakamura H.

#### STUDY DESIGN:

A retrospective cohort study with prospectively collected data.

#### OBJECTIVE:

The aim of this study was to investigate the clinical and radiological outcome of cervical laminoplasty for cervical myelopathy with degenerative spondylolisthesis.

#### SUMMARY OF BACKGROUND DATA:

The presence of spondylolisthesis is thought to represent segmental instability in spine. Cervical laminoplasty is a common decompression surgery for cervical myelopathy, but its clinical result for cervical spondylolisthesis has not been well studied.

#### METHODS:

One hundred seventeen patients who underwent cervical laminoplasty for degenerative cervical myelopathy were included. Japanese Orthopaedic Association score (JOA score) and visual analog scale of neck pain, upper arm pain and numbness were evaluated before surgery, and at scheduled time points after surgery. Spondylolisthesis was defined as more than 2mm slip on plain radiograph, and the clinical results were compared between the patients with spondylolisthesis (group S) and without spondylolisthesis (group C). In the patients with spondylolisthesis, the slip distance and translational motion between flexion and extension was examined on plain lateral radiograph before surgery and 2 years after surgery.

#### RESULTS:

Degenerative cervical spondylolisthesis was found in 49 levels of 33 patients (28.2%), and the average age of group S was significantly higher than group C. JOA score and each VAS score was significantly improved after surgery in both groups. Average JOA score of group S was significantly lower than group C at every time points, but the recovery rate was similar between the two groups. In the level of spondylolisthesis, average slip distance did not change, but average translational motion was significantly decreased in 2 years after surgery.

#### CONCLUSION:

Cervical spondylolisthesis was common in elderly patients. The clinical outcome in group S was comparable with group C, and the level with spondylolisthesis has been stabilized after surgery.

Thus, laminoplasty can be a treatment option even for cervical myelopathy with degenerative spondylolisthesis.

LEVEL OF EVIDENCE: 3

## 14. HEADACHES

### HA and stroke

J Headache Pain. 2016 Dec;17(1):108. Epub 2016 Dec 1.

#### **The potential impact of primary headache disorders on stroke risk.**

Tsai CL<sup>1,2</sup>, Chou CH<sup>1,2</sup>, Lee PJ<sup>3</sup>, Yin JH<sup>1,4</sup>, Chen SY<sup>5,6,7</sup>, Lin CC<sup>1</sup>, Sung YF<sup>1</sup>, Yang FC<sup>1</sup>, Chung CH<sup>8,9,10</sup>, Chien WC<sup>9,10</sup>, Tsai CK<sup>1</sup>, Lee JT<sup>11,12</sup>.

Author information

Abstract

#### **BACKGROUND:**

Headache such as migraine is associated with stroke. Studies focused on primary headache disorders (PHDs) as a risk factor for stroke are limited. The purpose of this population-based cohort study was to explore whether patients with PHDs were at a high risk for developing stroke.

#### **METHODS:**

A total of 1346 patients with PHDs were enrolled and compared with 5384 age-, gender- and comorbidity-matched control cohorts. International Classification of Diseases, Clinical Modification codes were administered for the definition of PHDs, stroke, and stroke risk factors. Cox proportional-hazards regressions were performed for investigating hazard ratios (HR).

#### **RESULTS:**

PHDs patients exhibited a 1.49 times (95% CI:1.15-1.98,  $p < 0.01$ ) higher risk for developing ischaemic stroke compared with that of control cohorts. Both migraine (HR = 1.22, 95% CI:1.13-1.97,  $p < 0.05$ ) and tension-type headache (HR = 2.29, 95% CI:1.22-2.80,  $p < 0.01$ ) were associated with an increased risk of ischemic stroke. Females with PHDs were at greater risk of developing ischaemic stroke (HR = 1.49, 95% CI:1.13-1.90,  $p < 0.01$ ) than those without PHDs. PHDs patient aged 45 to 64 years displayed significantly higher risk to develop ischaemic stroke (HR=1.50, 95% CI: 1.11-2.10,  $p < 0.05$ ) than the matched controls. The impact of PHDs on ischaemic stroke risk became gradually apparent by different following time intervals beyond 2 years after first diagnosis.

#### **CONCLUSION:**

PHDs is suggestive of an incremental risk for ischaemic stroke with gender-dependent, age-specific and time-dependent characteristics.

**Maxillary advancement in sleep apnea****Maxillomandibular advancement for obstructive sleep apnea syndrome treatment: Long-term results**

Aurélie Vigneron, MD Renaud Tamisier, MD P Emmanuelle Orset, MD Jean-Louis Pepin, MD PhD Georges Bettega, MD PhD

DOI: <http://dx.doi.org/10.1016/j.jcms.2016.12.001>

**Summary**

**Study Objectives.** We evaluated the long term effectiveness of maxillomandibular advancement (MMA) for OSAS treatment Patients. This retrospective study reviewed the patients treated by MMA for OSAS between 1995 and 2009. They were evaluated by complete polysomnography, cephalometry and quality of life questionnaire. The minimum follow up was 3 years. Success rate was defined by an IAH<10 with at least a 50% reduction.

**Measurements and results.** 88 patients had MMA during this period. 34 accepted the evaluation (28 men, 6 women). Mean age was  $52.4\pm 14$ . Mean follow-up was 12.5 years. Long term success rate was 28% for the entire group, postoperative IAH was reduced between 50 to 80% for all the patients except one. Success rate was 100% for young patients (age< 45), with BMI<25 and IAH<45 and SNB<75° and narrow retrobasinlingual space (<8 mm) and with preoperative orthodontics. Esthetic and sleep results were better with a moderate maxillary advancement and anterior impaction. There was no skeletal relapse. The major postoperative complication was inferior alveolar nerve hypoesthesia.

**Conclusions.** MMA is an effective and stable treatment of OSAS in selected patients. Preoperative orthodontics is recommended.

**Orthodontics and airways**

Am J Orthod Dentofacial Orthop. 2016 Dec;150(6):937-944. doi: 10.1016/j.ajodo.2016.05.013.

**Effect of orthodontic treatment on the upper airway volume in adults.**

Pliska BT<sup>1</sup>, Tam IT<sup>2</sup>, Lowe AA<sup>3</sup>, Madson AM<sup>4</sup>, Almeida FR<sup>5</sup>.

Author information

Abstract

**INTRODUCTION:**

The aim of this study was to examine the effects of orthodontic treatment with and without extractions on the anatomic characteristics of the upper airway in adults.

**METHODS:**

For this retrospective study, the pretreatment and posttreatment cone-beam computed tomography scans of 74 adult patients meeting defined eligibility criteria were analyzed. Imaging software was used to segment and measure upper airway regions including the nasopharynx, the retropalatal, and retroglossal areas of the oropharynx, as well as the total airway. The Wilcoxon signed rank test was used to compare volumetric and minimal cross-sectional area changes from pretreatment to posttreatment.

**RESULTS:**

The reliability values were high for all measurements, with intraclass correlation coefficients of 0.82 or greater. The volumetric treatment changes for the extraction and nonextraction groups were as follows: total airway,  $1039.6 \pm 3674.3 \text{ mm}^3$  vs  $1719.2 \pm 4979.2 \text{ mm}^3$ ; nasopharynx,  $136.1 \pm 1379.3 \text{ mm}^3$  vs  $-36.5 \pm 1139.8 \text{ mm}^3$ ; retropalatal,  $412.7 \pm 3042.5 \text{ mm}^3$  vs  $399.3 \pm 3294.6 \text{ mm}^3$ ; and retroglossal,  $412.5 \pm 1503.2 \text{ mm}^3$  vs  $1109.3 \pm 2328.6 \text{ mm}^3$ . The treatment changes in volume or minimal cross-sectional area for all airway regions examined were not significantly ( $P > 0.05$ ) different between the extraction and nonextraction groups.

**CONCLUSIONS:**

Orthodontic treatment in adults does not cause clinically significant changes to the volume or the minimally constricted area of the upper airway. These results suggest that dental extractions in conjunction with orthodontic treatment have a negligible effect on the upper airway in adults.



**Bruxism**

J Prosthet Dent. 2016 Nov 8. pii: S0022-3913(16)30461-9. doi: 10.1016/j.prosdent.2016.09.012.

**Prosthodontic planning in patients with temporomandibular disorders and/or bruxism: A systematic review.**

Manfredini D<sup>1</sup>, Poggio CE<sup>2</sup>.

**Author information****Abstract****STATEMENT OF PROBLEM:**

The presence of temporomandibular disorders (TMDs) and/or bruxism signs and symptoms may present multifaceted concerns for the prosthodontist.

**PURPOSE:**

The purpose of this systematic review was to evaluate the relationship between prosthetic rehabilitation and TMDs and bruxism.

**MATERIAL AND METHODS:**

Three research questions were identified based on different clinical scenarios. Should prosthodontics be used to treat TMD and/or bruxism? Can prosthodontics cause TMDs and/or bruxism? How can prosthodontics be performed (for prosthetic reasons) in patients with TMDs and/or bruxism? A systematic search in the PubMed database was performed to identify all randomized clinical trials (RCTs) comparing the effectiveness of prosthodontics with that of other treatments in the management of TMDs and/or bruxism (question 1); clinical trials reporting the onset of TMDs and/or bruxism after the execution of prosthetic treatments in healthy individuals (question 2); and RCTs comparing the effectiveness of different prosthodontics strategies in the management of the prosthetic needs in patients with TMDs and/or bruxism (question 3).

**RESULTS:**

No clinical trials of the reviewed topics were found, and a comprehensive review relying on the best available evidence was provided. Bruxism is not linearly related to TMDs, and both of these conditions are multifaceted. Based on the diminished causal role of dental occlusion, prosthetic rehabilitation cannot be recommended as a treatment for the 2 conditions. In theory, they may increase the demand for adaptation beyond the stomatognathic system's tolerability. No evidence-based guidelines were available for the best strategy for managing prosthetic needs in patients with TMDs and/or bruxism.

**CONCLUSIONS:**

This systematic review of publications revealed an absence of RCTs on the various topics concerning the relationship between TMD and bruxism and prosthodontics. Based on the best

available evidence, prosthetic changes in dental occlusion are not yet acceptable as strategies for solving TMD symptoms or helping an individual stop bruxism. Clinicians should take care when performing irreversible occlusal changes in healthy individuals and in patients with TMD and/or bruxism.

### Migraines and childhood abuse

Headache. 2016 Dec 5. doi: 10.1111/head.12994.

#### **Emotional Abuse History and Migraine Among Young Adults: A Retrospective Cross-Sectional Analysis of the Add Health Dataset.**

Tietjen GE<sup>1</sup>, Karmakar M<sup>2</sup>, Amialchuk AA<sup>3</sup>.

Author information

Abstract

##### *OBJECTIVES:*

To define and examine the relationship between self-reported childhood abuse and migraine among young adults.

##### *BACKGROUND:*

Headache and migraine have been linked to childhood abuse in numerous studies, but there is incomplete characterization of headache types, and limited assessment of abuse types and frequency. Only one population-based study has examined the relationship between emotional abuse and migraine. None have investigated the temporal relationship between onset of abuse and of migraine.

##### *METHODS:*

We analyzed data from 14,356 adults aged 24-32 years in Wave 4, which is a cross-sectional subset of the longitudinal Add Health study. Participants were queried regarding abuse (emotional, physical and sexual) during childhood, diagnosis of migraine, depression and anxiety by healthcare providers, and symptoms of current depression. We used logistic regression to estimate the association between childhood abuse and migraine, controlling for socio-demographic factors, current depression, and lifetime diagnosis of anxiety and depression.

##### *RESULTS:*

About 14% (n = 2040) of respondents reported migraine. Participants with migraine (vs no migraine) reported significantly higher rates of childhood abuse overall (60.6% vs 48.9%), including emotional (57.8% vs 45.4%), sexual (8.4% vs 4.6%) and physical (22.4% vs 17.9%) abuse. Emotional abuse had a stronger association with migraine (odds ratio [OR] 1.62; 95% confidence interval [CI] 1.43-1.85) when compared with physical (OR 1.06; 95% CI 0.89-1.68) and sexual abuse (OR 1.06; 95% CI 0.93-1.68), adjusting for socio-demographic factors. The emotional abuse-migraine association remained even when controlling for lifetime diagnosis of depression and anxiety (OR 1.37; 95% CI 1.19-1.57) and for current depression (OR 1.47; 95% CI 1.30-1.67). The odds of migraine increased with increasing number of abuse types reported. There was a U-shaped distribution of odds of migraine associated with frequency of occurrences

of emotional abuse, peaking at one time (OR 1.65; 95% CI 1.34-2.03) and  $\geq$  six times (OR 1.77; 95% CI 1.49-2.10).

**CONCLUSIONS:**

Emotional abuse during childhood contributed more than physical or sexual abuse to the development of migraine. There is a dose-response relationship with increasing number of abuse types associated with rising odds of migraine. In addition, the relationship between the frequency of emotional abuse and the odds of migraine follows a U-shape pattern.

### 21. ADHESIVE CAPSULITIS

**Ultrasound**

**Does ultrasound therapy add to the effects of exercise and mobilization in frozen shoulder? A pilot randomized double-blind clinical trial**

Safoora Ebadi Bijan Forogh Ehsan Fallah Arash Babaei Ghazani

**Objective**

This study intended to determine the extent to which Ultrasound could add to the effects of exercise and manual therapy in the rehabilitation treatment of primary adhesive capsulitis.

**Design**

A pilot double blind randomized clinical trial was carried out on 50 patients suffering from primary adhesive capsulitis. Intervention included continuous 3 MHz, 1.5 w/cm<sup>2</sup> Ultrasound, applied for the first group and sham Ultrasound for the second group. In addition specific stretching and strengthening exercises as well as glenohumeral joint mobilization were delivered to both groups. Pain (VAS), functional ability (using Oxford Shoulder Score) and shoulder range of motion were assessed at the baseline, after 10 sessions of treatment, and at 3 months follow-up. An intention to treat Mixed ANOVA analysis was performed to explore the interaction effects of time and group on outcome measures.

**Results**

No significant interaction effect of time and group was seen on pain, function and Range of Motion ( $p > 0.05$ ), meaning that the amount of improvement in all outcome measures were alike in the two groups.

**Conclusion**

Applying continuous Ultrasound along with a regimen of semi supervised exercise and mobilization in patients with primary adhesive capsulitis did not have any additional effect to the placebo Ultrasound, on outcome measures. Larger scale studies are needed to confirm the findings.

**22 A. IMPINGMENT****PRP vs cortisone**

Knee Surg Sports Traumatol Arthrosc. 2016 Dec;24(12):3787-3792. Epub 2015 May 28.

**The effect of subacromial injections of autologous conditioned plasma versus cortisone for the treatment of symptomatic partial rotator cuff tears.**

von Wehren L1, Blanke F2, Todorov A1, Heisterbach P1, Sailer J1, Majewski M3.

Author information

Abstract

*PURPOSE:*

Rotator cuff tears are one of the most common causes of shoulder malfunction and pain, which lead to a significant reduction in the quality of life. This present study investigated the effects of subacromial platelet-rich plasma injections [i.e. autologous conditioned plasma (ACP) injections] as compared to standard subacromial cortisone injection therapy in 50 patients with partial rotator cuff tears.

*METHODS:*

Before injection, and 6 weeks, 12 weeks and 6 months thereafter, the patients were assessed by the Constant-Murley score (CMS), the American Shoulder and Elbow Surgeons Standardized Shoulder Assessment Form (ASES), the simple shoulder test (SST) and a pain visual analogue scale (VAS). An MRI was also performed before and 6 months after injection.

*RESULTS:*

Both patient groups had statistically significant better shoulder score outcomes over time. ASES, SST and CMS outcomes after 12 versus 6 weeks were better in the ACP group as compared to the cortisone group. VAS, ASES and CMS outcomes after 12 weeks versus baseline in the ACP group were better as compared to the cortisone group. There was a statistically significant difference between ACP group and cortisone group 12 weeks after injection regarding VAS, ASES, SST and CMS in favour of the ACP group. The MRI showed an improvement in grade of tendinopathy in both groups, however, without statistically significant differences between the two groups.

*CONCLUSION:*

Compared with cortisone injections, ACP injections show earlier benefit as compared to cortisone injections although a statistically significant difference after 6 months could not be found. Therefore, subacromial ACP injections are a good alternative to subacromial cortisone injections, especially in patients with contraindication to cortisone.

**23. SURGERY**

**OA surgery**

Am J Sports Med. 2016 Dec;44(12):3206-3213. Epub 2016 Aug 5.

**Survivorship and Patient-Reported Outcomes After Comprehensive Arthroscopic Management of Glenohumeral Osteoarthritis: Minimum 5-Year Follow-up.**

Mitchell JJ<sup>1</sup>, Horan MP<sup>1</sup>, Greenspoon JA<sup>1</sup>, Menge TJ<sup>1</sup>, Tahal DS<sup>1</sup>, Millett PJ<sup>2,3</sup>.

Author information

Abstract

**BACKGROUND:** There are little data on midterm outcomes after the arthroscopic management of glenohumeral osteoarthritis (GHOA) in young active patients.

**PURPOSE:** To report outcomes and survivorship for the comprehensive arthroscopic management (CAM) procedure for the treatment of GHOA at a minimum of 5 years postoperatively.

**STUDY DESIGN:** Case series; Level of evidence, 4.

**METHODS:** The CAM procedure was performed on a consecutive series of 46 patients (49 shoulders) with advanced GHOA who met criteria for shoulder arthroplasty but instead opted for a joint-preserving, arthroscopic surgical option. The procedure included glenohumeral chondroplasty, capsular release, synovectomy, humeral osteoplasty, axillary nerve neurolysis, subacromial decompression, loose body removal, microfracture, and biceps tenodesis. Outcome measures included the American Shoulder and Elbow Surgeons (ASES), Single Assessment Numeric Evaluation (SANE), Quick Disabilities of the Arm, Shoulder and Hand (QuickDASH), Short Form-12 (SF-12) Physical Component Summary (PCS), visual analog scale for pain, and satisfaction scores. Kaplan-Meier survivorship analysis was performed with failure defined as progression to total shoulder arthroplasty (TSA).

**RESULTS:** Forty-six consecutive patients (49 shoulders) who underwent a CAM procedure at a minimum of 5 years from surgery were included. Two patients were excluded for refusing to participate before study initiation. The mean age at surgery was 52 years (range, 27-68 years) in 15 women and 29 men. All patients were recreational athletes with 7 former collegiate or professional athletes. Twelve shoulders (26%) progressed to TSA at a mean of 2.6 years (range, 0.5-8.2 years). For survivorship analysis, the status of the shoulder (preservation of the native joint or progression to TSA) at a minimum of 5 years was known for 45 of 47 (96%) shoulders. Survivorship was 95.6% at 1 year, 86.7% at 3 years, and 76.9% at 5 years. For surviving shoulders, minimum 5-year subjective outcome data were available for 28 of 32 (87.5%) shoulders at a mean of 5.7 years (range, 5-8 years). The mean ( $\pm$ SD) ASES score was  $84.5 \pm 17$ , the mean SANE score was  $82 \pm 18$ , the mean QuickDASH score was  $15 \pm 13$ , the mean SF-12 PCS score was  $51.0 \pm 9.1$ , and median patient satisfaction was 9 of a possible 10 points.

**CONCLUSION:** This study demonstrates significant improvements in midterm clinical outcomes and high patient satisfaction after the arthroscopic CAM procedure for GHOA, with a 76.9% survivorship rate at a minimum of 5 years postoperatively. For patients looking for an alternative to TSA, the CAM procedure can provide reasonable outcomes and should be considered an effective procedure in appropriately selected, young active patients. Further studies are warranted to evaluate long-term outcomes and durability after this procedure.

### 32 A. KNEE/ACL

#### ACL Instability

Am J Sports Med. 2016 Dec;44(12):3126-3131. Epub 2016 Aug 9.

#### **The Influence of Meniscal and Anterolateral Capsular Injury on Knee Laxity in Patients With Anterior Cruciate Ligament Injuries.**

Musahl V<sup>1</sup>, Rahnemai-Azar AA<sup>2</sup>, Costello J<sup>3</sup>, Arner JW<sup>2</sup>, Fu FH<sup>2</sup>, Hoshino Y<sup>4</sup>, Lopomo N<sup>5</sup>, Samuelsson K<sup>6</sup>, Irrgang JJ<sup>2</sup>.

Author information

## Abstract

**BACKGROUND:**

The role of the anterolateral capsule (ALC) as a secondary restraint to quantitative rotatory laxity of patients with an anterior cruciate ligament (ACL) injury is currently debated.

**PURPOSE/HYPOTHESIS:**

The purpose was to determine the influence of concomitant ALC injuries as well as injuries to other soft tissue structures on rotatory knee laxity in patients with an ACL injury. It was hypothesized that a concomitant ALC injury would be associated with increased rotatory knee laxity as measured during a quantitative pivot-shift test.

**STUDY DESIGN:**

Cross-sectional study; Level of evidence, 3.

**METHODS:**

Forty-one patients with an ACL injury (average age,  $23 \pm 6.9$  years) were enrolled. Two blinded musculoskeletal radiologists reviewed magnetic resonance imaging (MRI) scans for the presence of ACL injuries and concomitant soft tissue injuries including the ALC, medial collateral ligament, lateral collateral ligament, posterolateral corner, medial meniscus, and lateral meniscus. A standardized pivot-shift test was performed under anesthesia, and rotatory laxity was quantified according to anterior translation of the lateral tibial compartment during the pivot-shift maneuver. The Student t test was used to analyze the data. Statistical significance was set at  $P < .05$ .

**RESULTS:**

A complete ACL rupture was confirmed in all of the patients. MRI evidence of an ALC injury was observed in 21 (51%) of the patients. Patients with MRI evidence of an ALC injury had significantly higher rotatory knee laxity ( $3.6 \pm 1.5$  mm) compared with those without an ALC injury ( $2.7 \pm 1.5$  mm;  $P = .04$ ). Lateral and medial meniscus injuries were detected in 17 (41%) and 19 (46%) patients, respectively. Patients with MRI evidence of either a medial meniscus injury or lateral meniscus injury had significantly higher rotatory knee laxity compared with patients without these injuries (medial meniscus:  $3.7 \pm 1.4$  mm vs  $2.7 \pm 1.6$  mm, respectively; lateral meniscus:  $3.7 \pm 1.7$  mm vs  $2.7 \pm 1.3$  mm, respectively) ( $P = .03$  for both).

**CONCLUSION:**

MRI evidence of a concomitant injury to the ALC, medial meniscus, or lateral meniscus is associated with increased knee rotatory laxity in patients with an ACL injury. These structures may function as important secondary stabilizers in an ACL-injured knee. Careful assessment and proper treatment of injuries to these secondary stabilizers should be considered, especially in knees with a high level of the pivot shift.

**High tibial osteotomy**

Arch Orthop Trauma Surg. 2016 Dec 3.

**ACL deficiency and varus osteoarthritis: high tibial osteotomy alone or combined with ACL reconstruction?**

Mehl J<sup>1</sup>, Paul J<sup>2</sup>, Feucht MJ<sup>3</sup>, Bode G<sup>3</sup>, Imhoff AB<sup>4</sup>, Südkamp NP<sup>3</sup>, Hinterwimmer S<sup>5</sup>.

**Author information****Abstract**

**INTRODUCTION:**

This study investigates the mid- to long-term clinical and radiological outcome in patients with symptomatic varus osteoarthritis (OA) and deficiency of the anterior cruciate ligament (ACL) and analyzes whether there are differences between isolated high tibial osteotomy (HTO) or combined single-stage HTO and ACL reconstruction (ACLR).

**METHODS:**

26 patients who underwent HTO alone (group 1) and 26 patients who underwent single-stage HTO and ACLR (group 2) because of varus OA and ACL deficiency were examined at a mean of 5.8 years (SD 3.6 years) post-operatively. Assessment at follow-up (FU) was performed using a questionnaire including clinical scores (Lysholm, IKDC) and the KT-2000 arthrometer to examine anterior knee stability. Radiographic knee alignment and signs of OA according to the classification of Kellgren and Lawrence (KL) were assessed pre-operatively and at FU.

**RESULTS:**

Eighty-one percent of all patients reported an improvement of pain and 79% an improvement of instability without significant group difference. Significant worse results were observed in group 1 for the Lysholm score (group 1: 69.4, SD 15.7; group 2: 78.3, SD 16.4;  $p = 0.020$ ) and the IKDC score (group 1: 64.8, SD 13.0; group 2: 74.0, SD 15.6;  $p = 0.006$ ). No group difference was found for the KT-2000 examination. A significant post-operative increase of radiographic OA could be seen in both groups without significant group difference (KL pre-operative: 2.3, SD 0.63; KL FU: 2.8, SD 0.74;  $p < 0.001$ ). The radiographic leg alignment at FU showed a significant lower valgus alignment in group 1 (group 1: 0.4 degree, SD 3.3 degree; group 2: 2.1 degree, SD 2.1 degree;  $p = 0.039$ ). The rate of post-operative complications was low with 4%, and no significant group differences were found.

**CONCLUSIONS:**

This study shows that HTO alone can improve pain and even subjective knee stability. Additional ACLR was in the mid term not associated with a higher increase of OA or a higher rate of post-operative complications in our study collective.

**34. PATELLA****PF OA onset****Incidence, prevalence, natural course and prognosis of patellofemoral osteoarthritis: the Cohort Hip and Cohort Knee study**

N.E. Lankhorst J. Damen E.H. Oei J.A.N. Verhaar M. Kloppenburg S.M.A. Bierma-Zeinstra M. van Middelkoop, PhD



**Summary****Objective**

To examine the proportion of isolated patellofemoral osteoarthritis (PFOA) compared to tibiofemoral OA (TFOA) in middle-aged participants with early OA symptoms of the knee; to describe the natural course of PFOA compared with that of TFOA and to identify whether patients with PFOA have a different phenotype compared to patients with TFOA, or with combined PFOA and TFOA (COA).

**Design**

Participants with early OA symptoms of the knee were selected, completed questionnaires, underwent physical examination, and had knee radiographs at baseline, and at 2 and 5 years follow-up. Based on radiographs, participants were classified as having isolated TFOA, isolated PFOA, COA, or no radiographic OA. Multivariate logistic regression was used to identify participant characteristics associated with a specific group of OA at 2 years follow-up.

**Results**

The cohort comprised 845 participants (mean age 55.9 years). At baseline, 116 had PFOA, none had TFOA or COA. Of these 116 participants, 66.3% had developed COA at 5 years follow-up. At 2 years follow-up, PFOA, TFOA and COA were present in 77 (10.8%), 39 (5.5%) and 83 (11.6%) participants, respectively. Multivariate regression analyses at 2 years follow-up showed that participants with radiographic PFOA or TFOA were not significantly different from each other with respect to signs and symptoms.

**Conclusions**

These results suggest that OA is more likely to start in the patellofemoral joint and then progress to COA in individuals with symptoms of early knee OA. No differences in TFOA and PFOA phenotypes were determined with respect to signs and symptoms.

**35. KNEE/TOTAL****Partials effectiveness**

Knee. 2016 Dec 1. pii: S0968-0160(16)30195-8. doi: 10.1016/j.knee.2016.11.006.

**Annual revision rates of partial versus total knee arthroplasty: A comparative meta-analysis.**

Chawla H<sup>1</sup>, van der List JP<sup>2</sup>, Christ AB<sup>3</sup>, Sobrero MR<sup>4</sup>, Zuiderbaan HA<sup>5</sup>, Pearle AD<sup>6</sup>.

Author information

Abstract

**BACKGROUND:**

Utilization of unicompartmental knee arthroplasty (UKA) and patellofemoral arthroplasty (PFA) as alternatives to total knee arthroplasty (TKA) for unicompartmental knee osteoarthritis (OA) has increased. However, no single resource consolidates survivorship data between TKA and partial resurfacing options for each variant of unicompartmental OA. This meta-analysis compared survivorship between TKA and medial UKA (MUKA), lateral UKA (LUKA) and PFA using annual revision rate as a standardized metric.

**METHODS:**

A systematic literature search was performed for studies quantifying TKA, MUKA, LUKA and/or PFA implant survivorship. Studies were classified by evidence level and assessed for bias using the MINORS and PEDro instruments. Annual revision rates were calculated for each arthroplasty procedure as percentages/observed component-year, based on a Poisson-normal model with random effects using the R-statistical software package.

**RESULTS:**

One hundred and twenty-four studies (113 cohort and 11 registry-based studies) met inclusion/exclusion criteria, providing data for 374,934 arthroplasties and 14,991 revisions. The overall evidence level was low, with 96.7% of studies classified as level III-IV. Annual revision rates were lowest for TKA (0.49%, CI 0.41 to 0.58), followed by MUKA (1.07%, CI 0.87 to 1.31), LUKA (1.13%, CI 0.69 to 1.83) and PFA (1.75%, CI 1.19 to 2.57). No difference was detected between revision rates for MUKA and LUKA ( $p=0.222$ ).

**CONCLUSIONS:**

Revisions of MUKA, LUKA and PFA occur at an annual rate of 2.18, 2.31 and 3.57-fold that of TKA, respectively. These estimates may be used to inform clinical decision-making, guide patient expectations and evaluate the cost-effectiveness of total versus partial knee replacement in the setting of unicompartmental OA.

### 37. OSTEOARTHRITIS/KNEE

#### Depression and OA

Clin Rheumatol. 2016 Dec 12.

**Depressive symptoms and structural disease progression in knee osteoarthritis: data from the Osteoarthritis Initiative.**

Rathbun AM<sup>1</sup>, Yau MS<sup>2</sup>, Shardell M<sup>3</sup>, Stuart EA<sup>4</sup>, Hochberg MC<sup>5</sup>.

Author information

#### Abstract

Depressive symptoms are associated with increases in pain and functional limitations in knee osteoarthritis (OA). The aim was to determine whether depressive symptoms are also associated with greater structural knee OA progression. Four years of annual radiographic and clinical assessments from the Osteoarthritis Initiative were analyzed. The Center for Epidemiological Studies Depression Scale was used to identify depressive symptoms (threshold =  $\geq 16$ ) at the baseline visit. Propensity scores were used to match participants with and without baseline depressive symptoms on multiple potential confounders. Assessment of radiographic knee OA was based on changes in individual radiographic features, which included osteophyte (OST) grade and joint space narrowing (JSN) grade. Mixed effect models were used to examine structural progression between depressed and non-depressed participants with definitive radiographic knee OA. Depressive symptoms were significantly associated with a higher risk of OST progression (odds ratio [OR] = 1.74; 95% confidence interval [CI]: 1.01, 3.00) and a non-significant lower risk of JSN progression (OR = 0.40; 95% CI: 0.14, 1.15) 1 year after baseline. Conversely, there was a non-significant lower risk of OST progression (OR = 0.71; 95% CI: 0.28, 1.79) and higher risk of JSN progression (OR = 1.89; 95% CI: 0.71, 5.06) from year 3 to year 4 of follow-up. However, the patterns of OST progression and JSN progression were not significantly different between the depressed and non-depressed ( $P = 0.25$  and  $0.15$ , respectively). The findings provide no evidence that depressive symptoms have a detectable effect on changes in radiographic disease severity in knee OA.

**Foot and ankle pain increases risk of OA**

**The relationship between foot and ankle symptoms and risk of developing knee osteoarthritis: Data from the osteoarthritis initiative**

Osteoarthritis and Cartilage , 12/12/2016 Paterson KL, et al.

This study was designed to elucidate if foot and/or ankle symptoms increase the risk of establishing knee symptoms and symptomatic radiographic knee osteoarthritis (OA). It was observed that the presence of contralateral foot/ankle symptoms in particular increases risk of developing both knee symptoms and symptomatic radiographic knee OA, in individuals at-risk of knee OA.

### Methods

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- Clinicians examined a total of 1020 Osteoarthritis Initiative subjects who were at-risk of knee OA, but were without knee symptoms or radiographic knee OA.
- Subjects demonstrated the presence and laterality of foot/ankle symptoms at baseline.
- The main outcome was development of knee symptoms (pain, aching or stiffness in and around the knee on most days of the month for at least one month in the past year).
- A secondary outcome was development of symptomatic radiographic knee OA (symptoms plus Kellgren and Lawrence [KL] grade >2), over the subsequent four years.
- They examined associations between foot/ankle symptoms and study outcomes by logistic regression models.

### Results

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- It was revealed that foot/ankle symptoms in either or both feet significantly increased the odds of developing knee symptoms (adjusted odds ratio (OR) 1.55, 95% confidence interval (CI) 1.10 to 2.19), and developing symptomatic radiographic knee OA (adjusted OR 3.28, 95% CI 1.69 to 6.37).
- An associations were observed between contralateral foot/ankle symptoms with developing both knee symptoms (adjusted OR 1.68, 95% CI 1.05 to 2.68) and symptomatic radiographic knee OA (adjusted OR 3.08, 95% CI 1.06 to 8.98), whilst bilateral foot/ankle symptoms were associated with developing symptomatic radiographic knee OA (adjusted OR 4.02, 95% CI 1.76 to 9.17).

### Yoga vs. strengthening

Rheumatol Int. 2016 Dec 2.

**Managing knee osteoarthritis with yoga or aerobic/strengthening exercise programs in older adults: a pilot randomized controlled trial.**

Cheung C<sup>1</sup>, Wyman JF<sup>2</sup>, Bronas U<sup>3</sup>, McCarthy T<sup>2</sup>, Rudser K<sup>2</sup>, Mathiason MA<sup>2</sup>.  
 Author information

**Abstract**

Although exercise is often recommended for managing osteoarthritis (OA), limited evidence-based exercise options are available for older adults with OA.

This study compared the effects of Hatha yoga (HY) and aerobic/strengthening exercises (ASE) on knee OA. Randomized controlled trial with three arms design was used: HY, ASE, and education control. Both HY and ASE groups involved 8 weekly 45-min group classes with 2-4 days/week home practice sessions. Control group received OA education brochures and weekly phone calls from study staff. Standardized instruments were used to measure OA symptoms, physical function, mood, spiritual health, fear of falling, and quality of life at baseline, 4 and 8 weeks. HY/ASE adherences were assessed weekly using class attendance records and home practice video recordings. Primary analysis of the difference in the change from baseline was based on intent-to-treat and adjusted for baseline values. Eighty-three adults with symptomatic knee OA completed the study (84% female; mean age 71.6 ± 8.0 years; mean BMI 29.0 ± 7.0 kg/m<sup>2</sup>). Retention rate was 82%. Compared to the ASE group at 8 weeks, participants in the HY group had a significant improvement from baseline in perception of OA symptoms (-9.6 [95% CI -15.3, -4]; p = .001), anxiety (-1.4 [95% CI -2.7, -0]; p = .04), and fear of falling (-4.6 [-7.5, -1.7]; p = .002).

There were no differences in class/home practice adherence between HY and ASE. Three non-serious adverse events were reported from the ASE group. Both HY and ASE improved symptoms and function but HY may have superior benefits for older adults with knee OA. Trial registration The full trial protocol is available at [clinicaltrials.gov](http://clinicaltrials.gov)

**38 A. FOOT AND ANKLE**

**Diabetic foot**

J Orthop Surg Res. 2016 Nov 18;11(1):143.

**The effect of cumulative glycemic burden on the incidence of diabetic foot disease.**

Dekker RG 2nd<sup>1</sup>, Qin C<sup>2</sup>, Ho BS<sup>3</sup>, Kadakia AR<sup>1</sup>.

Author information

Abstract

**BACKGROUND:**

Glycemic control is a known modifiable risk factor for diabetic foot disease. Prior attempts to define its relationship with diabetic foot ulcer and Charcot arthropathy fail to account for variability in control and duration of diabetic disease. We developed a novel metric to reflect aggregate disease exposure in a diabetic, termed cumulative glycemic burden. We hypothesized that it would be positively associated with both diabetic foot ulcer and radiographically diagnosed Charcot arthropathy.

**METHODS:**

Patients aged 18 to 90 years with  $\geq 3$  hemoglobin A1c (HbA1c) values were identified retrospectively at a single institution over a 15-year period. Primary outcomes were ICD-9 diagnosis of foot ulcer and radiographically diagnosed Charcot arthropathy. Cumulative glycemic burden was calculated by trapezoidal integration of the area under a curve defined by HbA1c values above 7 over time. Patients were stratified into quartiles based on cumulative glycemic burden (excellent, good, fair, and poor control).  $\chi^2$  tests compared the proportion of foot ulcer and Charcot across quartiles. Regression analysis identified associated demographic and comorbidity factors with diabetic foot disease. Statistical significance was set at  $P < .05$ .

**RESULTS:**

Out of 22,913 diabetics, 1643 (7.2%) had a foot ulcer; 54 out of 771 diabetics (7.0%) had radiographic Charcot arthropathy. There was a statistically significant stepwise increase in the incidence of foot ulcer with increasing cumulative glycemic burden by patient quartile (5.2 vs. 6.4 vs. 7.9 vs. 13.9%;  $P < .001$ ). No significant trend was seen between incidence of Charcot arthropathy and greater cumulative glycemic burden (7.8 vs. 5.6 vs. 4.4 vs. 10.0%;  $P = .469$ ). Peripheral vascular disease was most strongly associated with diabetic foot ulcer. Hypertension and diabetic neuropathy were independently associated with Charcot arthropathy.

**CONCLUSIONS:**

Increasing cumulative glycemic burden is positively associated with diabetic foot ulcer. Greater attention should be paid towards the most poorly controlled diabetics with the longest duration of disease to reduce their risk. Cumulative glycemic burden is not associated with Charcot arthropathy.

## 41 B. COMPARTMENT SYNDROME

### FMT successful treatment

CASE REPORT A NON-OPERATIVE APPROACH TO THE MANAGEMENT OF CHRONIC EXERTIONAL COMPARTMENT SYNDROME IN A TRIATHLETE: A CASE REPORT  
Cristiana Kahl Collins, PT, PhD2 Brad Golden, PT, DPT

Isjpt Dec. 16

**ABSTRACT Background & Purpose:** Chronic Exertional Compartment Syndrome (CECS) causes significant exercise related pain secondary to increased intra-compartmental pressure (ICP) in the lower extremities. CECS is most often treated with surgery with minimal information available on non-operative approaches to care. This case report presents a case of CECS successfully managed with physical therapy.

**Study Design:** Case report **Case Description:** A 34-year-old competitive triathlete experienced bilateral anterior and posterior lower leg pain measured with a numerical pain rating scale of 7/10 at two miles of running. Pain decreased to resting levels of 4/10 two hours post exercise. The patient was diagnosed with bilateral CECS with left lower extremity ICP at rest measured at 36 mmHg (deep posterior), 36-38 mmHg (superficial posterior), and 25 mmHg (anterior). Surgery was recommended. **Interventions:** The patient chose non-operative care and was treated with physical therapy using the Functional Manual Therapy approach aimed at addressing myofascial restrictions, neuromuscular function and motor control deficits throughout the lower quadrant for 23 visits over 3.5 months.

**Outcomes:** At discharge the patient had returned to running pain free and training for an Olympic distance triathlon. The Lower Extremity Functional Scale improved from 62 to 80. The patient reported minimal post exercise tightness in bilateral lower extremities. Left lower extremity compartment pressure measurements at rest were in normal ranges measuring at 11 mmHg (deep posterior), 8 mmHg (superficial posterior), 19 mmHg (anterior), and 10 mmHg (lateral). Three-years post intervention the patient remained pain free with a Global Rating of Change of 6.

**Discussion:** This case report describes the successful treatment of a triathlete with Functional Manual Therapy resulting in a return to competitive sports without pain.

**Level of Evidence:** Level 4 **Key Words:** Chronic Exertional Compartment Syndrome, fasciotomy, physical therapy, running

### **45 B. MANUAL THERAPY CERVICAL**

#### **Vertebral artery in Polish individuals**

Eur Spine J. 2016 Dec;25(12):4164-4170. Epub 2016 Jun 23.

### **Anatomical anomalies of the V3 segment of the vertebral artery in the Polish population.**

Fortuniak J<sup>1</sup>, Bobeff E<sup>2</sup>, Polguy M<sup>3</sup>, Kośła K<sup>4</sup>, Stefańczyk L<sup>4</sup>, Jaskólski DJ<sup>2</sup>.

Author information

Abstract

#### **PURPOSE:**

The aim of this study is to evaluate the incidence of the anatomical anomalies of the V3 segment of the vertebral artery in the Polish population. There is conflicting evidence on the incidence of these anomalies: Asian-based studies show high incidence of 10 %, whereas the North American study identifies these anomalies in less than 1 % of patients.

#### **METHODS:**

1800 computed tomography angiographies (CTA) obtained at the Barlicki University Hospital in Lodz, Poland, were reviewed retrospectively.

#### **RESULTS:**

All the patients were Caucasians. There were 968 males and 832 females. The mean age of the patients was 58. CTAs were obtained for the following reasons: stroke 1312, trauma 25, vascular/aneurysm 216, and intracranial haemorrhage 247. Vertebral artery hypoplasia was present in 360 cases (20 %). Persistent intersegmental artery (type I anomaly) was not found in any study. Fenestration of the V3 vertebral artery (type II) was recognized in three angiograms (0.16 %). Vertebral artery ending up as posterior inferior cerebellar artery (type III anomaly) was seen in 11 patients (0.61 %).

#### **CONCLUSIONS:**

Very low incidence of V3 segment anomalies does not justify in our opinion routine vascular imaging in patients undergoing posterior cervical instrumented procedures.

## **45 D. MANUAL THERAPY EXTREMITIES**

**FMT successful treatment**



### **CASE REPORT A NON-OPERATIVE APPROACH TO THE MANAGEMENT OF CHRONIC EXERTIONAL COMPARTMENT SYNDROME IN A TRIATHLETE: A CASE REPORT**

Cristiana Kahl Collins, PT, PhD2 Brad Gilden, PT, DPT  
Isjpt Dec. 16

**ABSTRACT Background & Purpose:** Chronic Exertional Compartment Syndrome (CECS) causes significant exercise related pain secondary to increased intra-compartmental pressure (ICP) in the lower extremities. CECS is most often treated with surgery with minimal information available on non-operative approaches to care. This case report presents a case of CECS successfully managed with physical therapy.

**Study Design:** Case report **Case Description:** A 34-year-old competitive triathlete experienced bilateral anterior and posterior lower leg pain measured with a numerical pain rating scale of 7/10 at two miles of running. Pain decreased to resting levels of 4/10 two hours post exercise. The patient was diagnosed with bilateral CECS with left lower extremity ICP at rest measured at 36 mmHg (deep posterior), 36-38 mmHg (superficial posterior), and 25 mmHg (anterior). Surgery was recommended. **Interventions:** The patient chose non-operative care and was treated with physical therapy using the Functional Manual Therapy approach aimed at addressing myofascial restrictions, neuromuscular function and motor control deficits throughout the lower quadrant for 23 visits over 3.5 months.

**Outcomes:** At discharge the patient had returned to running pain free and training for an Olympic distance triathlon. The Lower Extremity Functional Scale improved from 62 to 80. The patient reported minimal post exercise tightness in bilateral lower extremities. Left lower extremity compartment pressure measurements at rest were in normal ranges measuring at 11 mmHg (deep posterior), 8 mmHg (superficial posterior), 19 mmHg (anterior), and 10 mmHg (lateral). Three-years post intervention the patient remained pain free with a Global Rating of Change of 6.

**Discussion:** This case report describes the successful treatment of a triathlete with Functional Manual Therapy resulting in a return to competitive sports without pain.

**Level of Evidence:** Level 4 **Key Words:** Chronic Exertional Compartment Syndrome, fasciotomy, physical therapy, running

#### **48 A. STM**

**FMT successful treatment**

### **CASE REPORT A NON-OPERATIVE APPROACH TO THE MANAGEMENT OF CHRONIC EXERTIONAL COMPARTMENT SYNDROME IN A TRIATHLETE: A CASE REPORT**

Cristiana Kahl Collins, PT, PhD2 Brad Gilden, PT, DPT  
Isjpt Dec. 16

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**Discussion:** This case report describes the successful treatment of a triathlete with Functional Manual Therapy resulting in a return to competitive sports without pain.

**Level of Evidence:** Level 4 **Key Words:** Chronic Exertional Compartment Syndrome, fasciotomy, physical therapy, running

#### **51. CFS/BET**

**Seat supports**

J Manipulative Physiol Ther. 2016 Dec 2. pii: S0161-4754(16)30248-2. doi: 10.1016/j.jmpt.2016.10.006.

**Comparison of the BackJoy SitSmart Relief and Spine Buddy LT1 H/C Ergonomic Chair Supports on Short-Term Neck and Back Pain.**

Ward J<sup>1</sup>, Coats J<sup>2</sup>.  
Author information

**Abstract****OBJECTIVE:**

The purpose of this study was to perform a needs assessment to determine whether short-term use of BackJoy SitSmart Relief and Spine Buddy LT1 H/C chair supports influences neck, upper back, and lower back pain.

**METHODS:**

Forty-eight college students (age,  $27.5 \pm 6.3$  years; height,  $1.72 \pm 0.08$  m; body mass,  $78.7 \pm 19.8$  kg; time seated that day,  $4.3 \pm 2.8$  hours; means  $\pm$  SD) were recruited for this study. The Nordic Musculoskeletal Questionnaire was used to measure pain for the neck, upper back, and lower back regions. Subjects were randomized to sit in a stationary office chair for a single 12-minute period under 1 of 4 conditions: office chair only (control group), BackJoy SitSmart Relief and chair, freezer-cooled Spine Buddy LT1 H/C and chair, or microwave-heated Spine Buddy LT1 H/C and chair. Participants then completed a posttest Nordic Musculoskeletal Questionnaire. A between-within repeated-measures analysis of variance using the between-subject factor intervention (group) and within-subject factor time (baseline and posttest) was used to analyze study data.

**RESULTS:**

The main effect of time across the whole sample was statistically significant for neck ( $P = .000$ ), upper back ( $P = .032$ ), and lower back ( $P = .000$ ) pain; however, there was no statistically significant interaction effect between intervention and time. Thus, as long as participants sat down and rested, symptoms improved similarly across the different groups.

**CONCLUSIONS:**

In this preliminary study, short-term and single use of a support product for an office chair had no additive effect on reducing neck and back pain.

**52. EXERCISE**

Whiplash pain helped with isometric ex.

April 2017 Volume 15, Pages 14–21

### Exercise induced hypoalgesia is elicited by isometric, but not aerobic exercise in individuals with chronic whiplash associated disorders

Ashley Smith Carrie Ritchie Ashley Pedler Kaitlin McCamle Kathryn Roberts  
Michele Sterling

#### Highlights

- An isometric wall squat exercise reduced pain sensitivity in individuals with chronic WAD.
- Thirty minutes of cycling did not increase pain sensitivity.
- Descending pain modulation was not associated with exercise induced hypoalgesia.
- Psychological factors were not associated with pain sensitivity following exercise.

#### Abstract

**Background and aims** Reduced pain sensitivity following exercise is termed exercise induced hypoalgesia (EIH). Preliminary evidence suggests that impairment of EIH is evident in individuals with whiplash associated disorders (WAD) following submaximal aerobic exercise. This study aimed to compare EIH responses to isometric and aerobic exercise in patients with chronic WAD and healthy controls and investigate relationships between EIH, conditioned pain modulation (CPM) and psychological factors in patients with chronic WAD.

**Methods** A cross sectional pre-post study investigated the effect of a single session of submaximal aerobic cycling exercise and a single session of isometric timed wall squat exercise on EIH in a group of participants with chronic WAD ( $n = 21$ ) and a group of asymptomatic control participants ( $n = 19$ ). Bivariate analyses between EIH and baseline measures of CPM and psychological features (fear of movement, pain catastrophization and posttraumatic stress symptoms) were also investigated.

**Results** The isometric wall squat exercise but not the aerobic cycling exercise resulted in EIH in both groups ( $P < .023$ ) with no between-group differences ( $P > .55$ ) demonstrated for either exercise. There were no significant associations measured between EIH (for either exercise performed), and CPM, or any of the psychological variables.

**Conclusions** This study showed that individuals with chronic WAD and mild to moderate pain and disability, and no evidence of dysfunctional CPM, demonstrated reduced pain sensitivity, both in the cervical spine and over the tibialis anterior following an isometric, timed wall squat exercise. Cycling exercise did not increase pain sensitivity.

**Implications** Individuals with chronic WAD and mild to moderate levels of neck pain and disability may experience less pain sensitivity both locally and remotely following an exercise program directed at non-painful muscles performing isometric exercises. Individuals cycling for 30 min at 75% of age-predicted heart rate maximum do not experience increased pain sensitivity.

## 56. ATHLETICS

**Dietary habits of athletes**

Am J Mens Health. 2016 Dec 5. pii: 1557988316680936.

**Motivators and Barriers to Engaging in Healthy Eating and Physical Activity: A Cross-Sectional Survey in Young Adult Men.**

Ashton LM<sup>1</sup>, Hutchesson MJ<sup>1</sup>, Rollo ME<sup>1</sup>, Morgan PJ<sup>1</sup>, Collins CE<sup>2</sup>.

Author information

**Abstract**

Many Australian young men (18-25 years) fail to meet recommendations in national dietary or physical activity (PA) guidelines. However, there is a lack of understanding of their perspectives on PA and diet to inform intervention design.

This study examined young men's motivators and barriers to healthy eating and PA, along with differences by demographic and behavioral factors. A cross-sectional online survey was completed by 282 men aged 18 to 25 years in Australia. Results identified the most common motivators for healthy eating included improving health (63.5%), body image (52.3%), and increasing energy (32.1%). Motivators for PA included improving body image (44.6%), fitness (44.2%), and health (41.0%). Common barriers to healthy eating were access to unhealthy foods (61.1%), time to cook/prepare healthy foods (55.0%), and motivation to cook healthy foods (50.7%). Barriers for PA included motivation (66.3%), time (57.8%), and cost of equipment/facilities (33.3%). Significant differences ( $p < .01$ ) in motivators to healthy eating and/or PA were identified for BMI category, marital status, PA level, alcohol intake, and stress levels. Significant differences were identified for barriers to healthy eating and/or PA by BMI, PA level, stress, and fruit and vegetable intake, assessed using Pearson's chi-square test.

Findings suggest that promotion of benefits related to health, appearance/body image, increased energy and fitness, and addressing key barriers including motivation, time, financial restraints, and accessibility of unhealthy foods, could engage young men in improving lifestyle behaviors. Differences by demographic and behavioral factors suggest development of tailored programs to address diversity among young men may be required.

**59. PAIN****Adolescents phenotypes and pain**

Clin J Pain. 2017 Jan;33(1):28-36.

**Clinical Phenotyping of Youth With New-Onset Musculoskeletal Pain: A Controlled Cohort Study.**

Lewandowski Holley A<sup>1</sup>, Wilson AC, Cho E, Palermo TM.  
Author information

## Abstract

**OBJECTIVES:**

The course of pediatric musculoskeletal pain from acute to chronic has not been well described and there is limited understanding of how to identify individuals with new-onset pain who may be predisposed to developing persisting symptoms. Thus, the purpose of this study was to describe the clinical phenotype of treatment-seeking youth with new-onset musculoskeletal pain compared with youth with and without chronic pain. Further, we tested predictors of pain-related disability and pain sensitivity in the new-onset pain sample.

**METHODS:**

Participants were 191 youth, ages 10 to 17 years, representing 3 cohorts (new-onset musculoskeletal pain, chronic musculoskeletal pain, and a comparison group without chronic pain). Participants completed questionnaire measures of pain characteristics, psychological functioning, sleep, and pain-related disability. They also attended a laboratory visit to complete an experimental pain assessment using heat and cold stimuli to assess pain sensitivity and conditioned pain modulation.

**RESULTS:**

Findings revealed youth with new-onset musculoskeletal pain had a distinct clinical phenotype where symptoms of pain and disability were in the mid-range between those of youth with diagnosed chronic musculoskeletal pain and youth in the community without chronic pain. Linear regressions within the new-onset pain sample demonstrated poorer sleep quality and higher pain fear predicted greater pain-related disability, and pain catastrophizing predicted cold pressor sensitivity.

**DISCUSSION:**

Clinical phenotyping of youth with new-onset musculoskeletal pain highlights factors relevant to the pain experience. Future research can examine the roles of these variables in predicting longitudinal risk for chronic pain and disability.

**Performance and pain in adolescents**

Clin J Pain. 2017 Jan;33(1):44-50.

Voerman JS<sup>1</sup>, de Klerk C, Vander Heyden KM, Passchier J, Idema W, Timman R, Jolles J.  
Author information

**Abstract****OBJECTIVES:**

The purpose of the present study was to determine whether pain is associated with specific aspects of academic performance, that is, poorer grades, and with factors critical to an adolescent's academic performance, that is, decreased emotional well-being and attention problems. We hypothesized that the association between pain and school grades is mediated by emotional well-being and attention problems.

**METHODS:**

In a cross-sectional study, we collected data from 2215 pupils, ages 12 to 13 years. Pain (no, occasional, and frequent), emotional well-being, and attention problems were measured with self-rating scales. Dutch, English, and math grades were taken as an index of academic performance.

**RESULTS:**

Frequent pain in adolescents was associated with poorer grades (Dutch  $P=0.02$  and math  $P=0.01$ ). Both occasional and frequent pain were associated with reduced emotional well-being ( $P<0.001$ ) and reduced self-reported attention ( $P<0.001$ ). However, the association between pain and lower grades disappeared when controlling for emotional well-being and attention.

**DISCUSSION:**

The present study shows that the association between pain and Dutch adolescents grades is mediated by reduced emotional well-being and attention problems. The association between pain and math grades is mediated by emotional problems. The results suggest that an intervention targeted at pain in adolescents could have a positive effect on their emotional well-being, attention, and school performance.

**COPD and pain**

Arch Phys Med Rehabil. 2016 Nov 17. pii: S0003-9993(16)31237-0. doi: 10.1016/j.apmr.2016.10.016. [Epub ahead of print]

**Comorbidities that cause pain and the contributors to pain in individuals with chronic obstructive pulmonary disease.**

Chen YW<sup>1</sup>, Camp PG<sup>2</sup>, Coxson HO<sup>3</sup>, Road JD<sup>4</sup>, Guenette JA<sup>2</sup>, Hunt MA<sup>5</sup>, Reid WD<sup>6</sup>.

Author information

Abstract

**OBJECTIVE:**

To determine comorbidities that cause pain and the potential contributors to pain in individuals with COPD.

**DESIGN:**

Prospective cross-sectional survey study.

**SETTING:**

Pulmonary rehabilitation programs of six centers.

**PARTICIPANTS:**

A convenience sample of individuals with COPD who attended pulmonary rehabilitation programs (n=137). In total, 100 (73%) returned the survey packages. Of those responders, 96 (70%) participants were included in the analyses.

**INTERVENTIONS:**

Not applicable.

**MAIN OUTCOME MEASURES:**

Pain was measured using the Brief Pain Inventory (BPI). The "health conditions that might contribute to pain and medication record" form asked about comorbidities that cause pain stated in lay terms. The health conditions that cause pain were then validated by health professionals. Demographics, fatigue, dyspnea, quality of life, and self-efficacy were also measured using questionnaires.

**RESULTS:**

Pain was reported in 71% of participants (68 of 96). Low back pain was the most common location (41%). Arthritis (75%), back problems (47%) and muscle cramps (46%) were the most common comorbidities that cause pain. Lower self-efficacy, renting rather than home ownership increased the likelihood of pain ( $p < 0.05$ ). Pain severity and BFI scores contributed to pain interference scores ( $p < 0.05$ ).

**CONCLUSION:**

Pain was highly prevalent in pulmonary rehabilitation program participants with COPD. The most common causes of pain were musculoskeletal conditions. Pain severity and higher levels of fatigue contributed to how pain interfered with daily aspects of living. The assessment and management of pain needs to be addressed within the overall care of individuals with COPD.



## 62 A. NUTRITION/VITAMINS

### Adolescents dietary quality

Am J Clin Nutr. 2016 Nov 23. pii: ajcn135095.

#### **Dietary quality of the US child and adolescent population: trends from 1999 to 2012 and associations with the use of federal nutrition assistance programs.**

Gu X<sup>1</sup>, Tucker KL<sup>2</sup>.

Author information

Abstract

#### **BACKGROUND:**

The state of the economy, changes in federal food assistance programs, and policies related to nutrition and the food supply in the United States may influence dietary quality in children and adolescents.

#### **OBJECTIVE:**

We investigated dietary quality trends from 1999 to 2012 in the US child and adolescent population and their associations with socioeconomic status and participation in federal food assistance programs.

#### **DESIGN:**

In this study, a nationally representative sample of 38,487 children and adolescents, aged 2-18 y, in the NHANES from 1999 to 2012 were included. Dietary information was collected with the use of a 24-h dietary recall. Dietary quality was measured with the use of the Healthy Eating Index 2010 (HEI-2010).

#### **RESULTS:**

The mean HEI-2010 increased significantly from 42.5 (95% CI: 41.2, 43.8) to 50.9 (95% CI: 50.0, 51.8) from 1999 to 2012 (P-linear trend < 0.001). The reduction in empty calorie intake contributed to greater than one-third of this improvement in the total HEI-2010. We also observed significant increases in 9 other HEI-2010 component scores. However, the HEI-2010 component score for sodium decreased significantly, which reflected an increase in sodium consumption. We calculated the covariate-adjusted mean HEI-2010 score in subgroups that were defined by sociodemographic status and participation in nutrition assistance program at each NHANES cycle. Non-Hispanic black children and adolescents had a consistently lower HEI-2010 than that of other groups across all NHANES cycles. We observed a trend toward a lower HEI-2010 in Supplemental Nutrition Assistance Program (SNAP) participants than in nonparticipants after the 2003-2004 cycle. We also observed a lower HEI-2010 in participants in the National School Lunch Program (NSLP) and the School Breakfast Program (SBP) than in nonparticipants. In general, participants in the Special Supplemental Nutrition Program for Women, Infants, and Children appeared to have a higher HEI-2010 than that of nonparticipants.

#### **CONCLUSIONS:**

Although HEI-2010 scores in children and adolescents improved steadily, the overall dietary quality remained poor. Participants in the SNAP and participants in the National School Lunch Program, School Breakfast Program, or both have lower dietary quality than do nonparticipants.

Future policy interventions are needed to continue improvement in dietary quality and to address disparities.

### Milk and CVD

#### **Dairy food intake is inversely associated with risk of hypertension: The Singapore Chinese Health Study**

The Journal of Nutrition, 12/15/2016

**T**alaei M, et al. – The analysis of the available data suggests that baseline dairy food intake, and specifically that of milk, may lessen the risk of developing hypertension in Chinese adults, and this may not be connected with the calcium component.

#### Methods

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- The analysis included 37,124 Chinese men and women aged 45–74 y who took an interest in the Singapore Chinese Health Study in 1993–1998.
- The subjects incorporated in the present study had no history of cancer, hypertension, or cardiovascular disease at baseline and completed <sup>o</sup>1 follow-up interview.
- Diet at baseline was surveyed by utilizing a validated 165-item semiquantitative food-frequency questionnaire.
- The occurrence of new, physician-diagnosed hypertension was found out through follow-up interviews during 1999–2004 and 2006–2010.
- The Cox proportional hazard regression method was utilized to compute HRs and 95% CIs with adjustment for potential confounders.

#### Results

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- The results of this study showed that dairy food intake was inversely connected with the risk of hypertension in a dose-dependent manner: HRs across quartiles were 1.00 (lowest quartile, reference), 0.97 (95% CI: 0.92, 1.02), 0.98 (95% CI: 0.92, 1.03), and 0.93 (95% CI: 0.88, 0.98) (P-trend = 0.01).
- Milk accounted for ~80% of all dairy products consumed in this populace.
- Findings revealed that daily milk drinkers had a lower danger of hypertension (HR: 0.94; 95% CI: 0.89, 0.99) than did nondrinkers.
- In addition, nondairy calcium intake contributed 80% of aggregate calcium intake.
- Although dairy calcium intake was connected with a lower risk of hypertension (HR comparing extreme quartiles: 0.88; 95% CI: 0.83, 0.94; P-trend < 0.001), there was no relationship for nondairy calcium intake (HR: 1.02; 95% CI: 0.94, 1.10; P-trend = 0.58).

**Carbohydrates and CVD**

Nutr J. 2016 Dec 1;15(1):100.

Meal rich in carbohydrate, but not protein or fat, reveals adverse immunometabolic responses associated with obesity.

Parvaresh Rizi E<sup>1,2</sup>, Baig S<sup>1</sup>, Shabeer M<sup>1</sup>, Teo Y<sup>1</sup>, Mok SF<sup>2</sup>, Loh TP<sup>3</sup>, Magkos F<sup>4,5</sup>, Virtue S<sup>6</sup>, Vidal-Puig A<sup>6</sup>, Tai ES<sup>1,2,7</sup>, Khoo CM<sup>1,2,7</sup>, Toh SA<sup>8,9,10,11</sup>.

Author information

**Abstract****BACKGROUND:**

Obesity-related insulin resistance is linked to inflammation. Immunometabolic function differs between lean and obese subjects, but whether macronutrient composition of ingested meals affects these responses is not well known. We examined the effects of a single meal rich in fat, protein, or carbohydrate on immunometabolic responses.

**METHODS:**

Nine lean insulin sensitive (LIS) men and 9 obese insulin resistant (OIR) men ingested high-carbohydrate (HC), high-fat (HF) or high-protein (HP) mixed meals in random order. We assessed plasma glucose, insulin, and cytokine responses and cytokine gene expression in circulating mononuclear cells (MNC) at fasting and postprandial states (up to 6-h).

**RESULTS:**

Expression of NF- $\kappa$ B and TNF $\alpha$  genes were greater; whereas that of TGF $\beta$  and IL-6 genes were lower, in the OIR compared to the LIS individuals. The differences were significantly greater after the HC meal, but not after the HP or HF meal. Similar results were obtained for plasma concentrations of TNF $\alpha$  and IL-6.

**CONCLUSIONS:**

Our findings indicate that a single HC meal has a distinct adverse effect on immunometabolic responses in the OIR individuals. The cumulative effect of such adverse responses to meals rich in carbohydrate may predispose the OIR individuals to a higher risk of cardiovascular disease.

**63. PHARMACOLOGY****Opioid use**

J Pain. 2016 Dec 2. pii: S1526-5900(16)30314-5. doi: 10.1016/j.jpain.2016.11.001.

**The initiation of chronic opioids: a survey of chronic pain patients Characterizing Chronic Opioid Use.**

Callinan CE, Neuman MD, Lacy KE, Gabison C, Ashburn MA.

**Abstract**

This study reports the results of a researcher-administered survey with 115 patients receiving chronic opioid therapy (>90 days) to obtain information regarding how chronic opioid therapy was started. Chronic opioids were started following surgery (27.0%; 95% CI:18.5-35.5) or for the treatment of acute injury-related pain (27.0%; 95% CI:18.5-35.5). Many who initiated opioid therapy after surgery reported post-operative complications (61.3%; 95% CI:50.8-71.8) and many with injury-related pain reported follow-up corrective surgery (58.1%; 95% CI:47.5-68.7), which led to the continuation of opioids. A large percentage of patients had concurrent depression (43.5%; 95% CI:34.0-53.0) and anxiety (23.5%; 95% CI:15.3-31.7). Many participants had a medical history of aberrant drug-related behavior (32.5%; 95% CI:23.5-41.5) and self-reported history of addiction (21.7%; 95% CI:13.7-29.7). Almost one quarter reported taking opioids for a different indication than that for which opioids were started (95% CI:26.6-45.0). Patients receiving long-term opioid therapy often transitioned to chronic use after starting opioids for the short-term treatment of post-operative or injury-related pain. It is not evident if a clear decision to continue opioids on a chronic basis was made. This survey provides insight as to how chronic opioid therapy is started, and may suggest opportunities for improved patient selection for opioid therapy.

***PERSPECTIVE:***

This article explores the reasons why patients using chronic opioid therapy (>90 days) initiated opioid medications. The results of this study may help clinicians better select patients for chronic opioid therapy.