

## 7. PELVIC ORGANS/WOMAN'S HEALTH

### Dysmenorrhea and pelvic pain

Am J Obstet Gynecol. 2013 Nov; 209(5): 422.e1–422.e10. doi: 10.1016/j.ajog.2013.08.020  
PMCID: PMC4191839 NIHMSID: NIHMS529899

#### **The association of dysmenorrhea with noncyclic pelvic pain accounting for psychological factors**

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#### OBJECTIVE

The factors that underlie pelvic pain are poorly understood. Specifically, the relative influence of dysmenorrhea and psychological factors in the etiology of noncyclic pelvic pain conditions, such as interstitial cystitis and irritable bowel syndrome, is unknown. To further characterize pelvic pain, we compared the frequency of menstrual, somatosensory, and psychological risk factors between women with and without severe noncyclic pelvic pain symptoms.

#### STUDY DESIGN

A total of 1012 reproductive-aged women completed a 112-item questionnaire with domains including mood, fatigue, physical activity, somatic complaint, and pain. Questionnaire items included existing items for menstrual distress and newly written items derived from qualitative interviews. The relationship of dysmenorrhea and noncyclic pelvic pain complaints (dyspareunia, dyschezia, or dysuria) was modeled using quantile regression.

#### RESULTS

Among women who menstruate regularly, those with dysmenorrhea had disproportionately more severe noncyclic pelvic pain (54/402, 13%) than women without dysmenorrhea (5/432, 1%; odds ratio, 13; 95% confidence interval, 5–33). In a multivariate-adjusted model, dysmenorrhea ( $\beta = .17$ ), activity capability ( $\beta = .17$ ), somatic complaint ( $\beta = .17$ ), and bodily pain ( $\beta = .12$ ) were the primary predictors of noncyclic pelvic pain. Depression ( $\beta = .03$ ) and anxiety ( $\beta = .01$ ) were not significantly predictive. The presence of dysmenorrhea, somatic complaint, and low activity capability predicted 90% of the cases of women with noncyclic pelvic pain.

#### CONCLUSION

The association between dysmenorrhea and noncyclic pelvic pain suggests that menstrual pain is an etiological factor in noncyclic pelvic pain, whereas depression and anxiety may be secondary effects. Longitudinal studies are needed to determine whether dysmenorrhea causally influences development of noncyclic pelvic pain or shares common underlying neural mechanisms.

**Keywords:** dysmenorrhea, interstitial cystitis, irritable bowel syndrome, pelvic pain

## IUD and bacteria

### Impact of contraceptive initiation on vaginal microbiota

American Journal of Obstetrics and Gynecology — 1 March 07, 2018 hills SL, et al.

In view of the limited and inconsistent data evaluating the impact of contraceptives on the vaginal microbiome, researchers here tested if women initiating copper intrauterine device use would have increased bacterial vaginosis and bacterial vaginosis-associated microbes with use compared to women initiating and using hormonal contraceptive methods. Findings suggested an increase in the colonization by bacterial vaginosis (BV)-associated microbiota in association with copper intrauterine device use, resulting in increased prevalence of BV. No alteration in vaginal microbiota was evident with the use of most hormonal contraception.

### Methods

- From asymptomatic, healthy women aged 18-35 in Harare, Zimbabwe who were confirmed to be free of non-study hormones by mass spectrometry, researchers collected vaginal swabs (N=1047 from 266 participants seeking contraception) for Nugent score determination of bacterial vaginosis (BV) and quantitative polymerase chain reaction analyses for assessment of specific microbiota.
- They initiated contraception with an injectable (depot medroxyprogesterone acetate (n=41), norethisterone enanthate (n=44), or medroxyprogesterone acetate and ethinyl estradiol (n=40)), implant (levonorgestrel- (n=45) or etonogestrel-implant (n=48)), or copper intrauterine device (n=48) and collected repeat vaginal swabs after 30, 90 and 180-days of continuous use.
- Across all arms, self-reported condom use was similar at baseline.
- They used quantitative polymerase chain reaction to detect *Lactobacillus crispatus*, *Lactobacillus jensenii*, *Lactobacillus gasseri/johnsonii* group, *Lactobacillus vaginalis*, *Lactobacillus iners*, *Gardnerella vaginalis*, *Atopobium vaginae* and *Megasphaera*-like bacterium phylotype I from swabs.
- To compare marginal prevalence and mean difference in quantity (expressed as gene copies/swab) prior to and during contraceptive use, they used Modified Poisson regression and mixed effects linear models.

### Results

- Women initiating copper intrauterine devices showed increase in BV prevalence from 27% at baseline to 35% at 30 days, 40% at 90 days and 49% at 180 days ( $p=.005$  compared to marginal prevalence at enrollment).
- No change in BV prevalence over 180 days was evident among women initiating hormonal methods.
- In women using copper intrauterine devices, the mean increase in Nugent score was 1.2 (95% CI 0.5-2.0,  $p=.001$ ).
- Intrauterine device users did not show change in the frequency and density of beneficial lactobacilli over six months, however, there was an increase in the log concentration of *Gardnerella vaginalis* (4.7, 5.2, 5.8, 5.9;  $p=.046$ ) and *Atopobium vaginae* (3.0, 3.8, 4.6, 5.1;  $p=.002$ ) between baseline and 30, 90 and 180 days after initiation.
- Among other contraceptive groups, women using depot medroxyprogesterone acetate showed decreased *Lactobacillus iners* (mean decrease log concentration= 0.8; 95% CI: 0.3, 1.5,  $p=.004$ ); no significant changes in beneficial *Lactobacillus species* was observed over 180 days regardless of contraceptive method used.

**Endometriosis**

J Pain. 2018 Feb 26. pii: S1526-5900(18)30085-3. doi: 10.1016/j.jpain.2018.02.005

**The Long-Term Footprint of Endometriosis: Population-Based Cohort Analysis Reveals Increased Pain Symptoms and Decreased Pain Tolerance at Age 46.**

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Previous studies have shown increased pain sensitivity in fertile-aged women with endometriosis in response to mechanical stimuli.

As yet, population-based studies on the association of endometriosis with pain sensation and pain symptoms in late fertile age are lacking. The main objective of this population-based cohort study was to investigate whether a history of endometriosis is associated with altered pain sensation and musculoskeletal pain symptoms at age 46. Our data is derived from the Northern Finland Birth Cohort 1966, which contains postal questionnaire data (72% response rate) as well as clinical data assessing pressure-pain threshold (PPT) and maximal pain tolerance (MaxPTo). The study population consisted of 284 women with endometriosis and 3390 controls. Our results showed that at age 46 women with a history of endometriosis had a 5.3% lower PPT and 5.1% lower maxPTo compared with controls. The most significant contributors besides endometriosis were anxiety, depression and current smoking status. Women with endometriosis also reported an increased number of pain sites (0 pain sites, 9.6 vs. 17.9%; 5-8 pain sites, 24.8 vs. 19.1%, endometriosis vs. controls respectively,  $p < 0.001$ ), and their pain was more troublesome and intense. The results were adjusted for BMI, smoking, depressive/anxiety symptoms, education and use of hormonal contraceptives. This unique data revealed an altered pain sensation and a greater likelihood of reporting musculoskeletal pain at age 46 among women with a history of endometriosis.

The results imply that endometriosis has a long-term footprint on affected women, thus underlying the need for psychological support and medical treatment beyond fertile age.

Perspective item This is a population-based cohort study showing decreased pain threshold and maximal pain tolerance in women with endometriosis up till late fertile age of 46 years. The pain was also found to be more bothersome and intense compared with controls.

**KEYWORDS:** *Endometriosis; Pain Threshold; Pain Tolerance; Pain Troublesomeness*  
PMID: 29496639 DOI: 10.1016/j.jpain.2018.02.005

## 8. VISCERA

### Mesh vs non-mesh and chronic pain

#### Chronic pain after mesh versus nonmesh repair of inguinal hernias: A systematic review and a network meta-analysis of randomized controlled trials

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DOI: <https://doi.org/10.1016/j.surg.2017.12.017>

#### Abstract

##### Background

Chronic pain affects 10%–12% of patients after inguinal hernia repairs. Some have suggested that less foreign material may theoretically prevent pain. If the prevalence of chronic pain is less after nonmesh repairs, selected hernias might be repaired without mesh. Our aim was to clarify if nonmesh repairs are superior to mesh repairs regarding chronic pain.

##### Methods

For this systematic review, searches were conducted in five databases. The main outcome was chronic pain reported a minimum of six months after mesh and nonmesh repair in adult patients with a primary inguinal hernia. Only randomized controlled trials (RCTs) were included.

##### Results

A total of 23 RCTs with 5,444 patients were included. The median follow up was 1.4 years (range 0.5–10). Twenty-one studies reported crude chronic pain rates, and when considering moderate and severe pain, the prevalences of pain after nonmesh repairs and mesh repairs were similar: median 3.5% (0%–16.2%) versus median 2.9% (0%–27.6%), respectively. Both the meta-analyses and the network meta-analysis indicated no difference in chronic pain rates when comparing nonmesh repairs with open- and laparoscopic mesh repairs.

##### Conclusion

Mesh may be used without fear of causing a greater rate of chronic pain.

**Sleep quality and arterial stiffness**

Atherosclerosis. 2018 Mar;270:95-101. doi: 10.1016/j.atherosclerosis.2018.01.039. Epub 2018 Jan 31.

**Low sleep quality is associated with progression of arterial stiffness in patients with cardiovascular risk factors: HSCAA study.**

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*BACKGROUND AND AIMS:*

Improvement in sleep quality is considered to be a viable target for prevention and treatment of cardiovascular diseases. To gain insight into its underlying mechanisms, we evaluated the significance of objectively measured sleep quality in patients with regard to progression of arterial stiffness over a 3-year follow-up period.

*METHODS:*

This prospective cohort study included 306 serial patients registered in the Hyogo Sleep Cardio-Autonomic Atherosclerosis (HSCAA) study. In addition to classical cardiovascular risk factors (body mass index, current smoking, past history of cardiovascular disease, dyslipidemia, diabetes mellitus), the participants were examined for ambulatory blood pressure (BP), apnea-hypopnea index (AHI), standard deviation of the NN (RR) interval (SDNN) for heart rate variability (HRV), and objective sleep quality using actigraphy findings. Brachial-ankle pulse wave velocity (baPWV) was measured at both baseline and follow-up (36.6 ± 6.8 months) as a parameter of arterial stiffness.

*RESULTS:*

Increases in PWV (%) were greater ( $p=0.03$ ) in the low sleep quality (LSQ) group ( $5.75 \pm 1.15\%$ ) as compared to the normal sleep quality group ( $2.69 \pm 0.85\%$ ). Patients with the greatest increase ( $\geq 20\%$ ) from baseline exhibited a significantly ( $p < 0.05$ ) larger percentage of LSQ (75% vs. 49.6%) as compared to those without PWV progression ( $< 0\%$ ), with the association still significant (odds ratio 3.62, 95% confidence interval 1.04-12.55,  $p = 0.04$ ) even after adjustment for other clinical risk factors. For all subjects, univariate logistic regression analyses showed that diabetes and LSQ were significantly associated with the greatest increase of PWV. Comparisons of characteristics among specific subgroups showed more prominent associations of LSQ with the greatest increase of PWV in patients with greater age, dyslipidemia, and higher AHI.

*CONCLUSIONS:*

LSQ was associated with progression of arterial stiffness over a 3-year period, independent of cardiovascular risk factors such as BP, AHI, and HRV.

## 12 B. CERVICAL SURGERIES

### Fusion vs replacement

World Neurosurg. 2018 Feb 27. pii: S1878-8750(18)30386-3. doi: 10.1016/j.wneu.2018.02.113.

#### **Rate of adjacent segment degeneration of cervical disc arthroplasty versus fusion Meta-analysis of randomized controlled trials.**

Luo J, Wang H, Peng J, Deng Z, Zhang Z, Liu S, Wang D, Gong M, Tang S.

#### **BACKGROUND:**

The concern of adjacent segment disease (ASD) has led to the development of motion-preserving technologies such as cervical disc arthroplasty (CDA). However, there is still controversy whether CDA is superior to anterior cervical decompression and fusion (ACDF) as to the incidence of ASD. The purpose of this study is to evaluate the rate of ASD between CDA and ACDF.

#### **METHODS:**

Systematic searches of all relevant studies through November, 2017 were identified from Cochrane Library, PubMed, Embase and CNKI. Randomized controlled trials (RCTs) comparing clinical effectiveness of CDA and ACDF for cervical DDD were included. Two independent reviewers searched and assessed all literature according to the standard of Cochrane systematic review. Data extraction and quality assessment were conducted, and RevMan 5.2 was used for data analysis. The random effects model was used if there was heterogeneity between studies; otherwise, the fixed effects model was used.

#### **RESULTS:**

A total of 21 studies were included in our meta-analysis. The pooled data revealed that CDA group had significantly lower adjacent segment diseases than that in the ACDF group. Furthermore, there were fewer adjacent segment reoperations in the CDA group compared with the ACDF group.

#### **CONCLUSIONS:**

Based on this meta-analysis, we conclude that CDA was better than the ACDF in terms of ASD and adjacent segment reoperations. This suggests the HS is a superior alternative invention for the treatment of cervical DDD to preserve cervical range of motion and reduce the risk of ASD. However, this requires further validation and investigation in larger sample-size prospective and randomized studies with long-term follow-up.

**13 C. AIRWAYS/SWALLOWING/SPEECH****OSA and stroke**

Neurologist. 2018 Mar;23(2):67-70. doi: 10.1097/NRL.000000000000180.

**Frequency of and Factors Associated With Obstructive Sleep Apnea and Periodic Limb Movements in Stroke and TIA Patients.**

Gadodia G<sup>1</sup>, Rangaraju S, Raza SA, Razzak A, Marmarchi L, Davis B, Henriquez L, Trotti LM, Rye D, Nahab F.

**INTRODUCTION:**

Obstructive sleep apnea (OSA) and periodic limb movements (PLMs) have been associated with an increased risk of cardiovascular disease. There is limited data on the relationship between OSA and PLMs with atrial fibrillation and resistant hypertension in stroke and transient ischemic attack (TIA) patients.

**METHODS:**

Consecutive stroke and TIA patients referred by a vascular neurologist for diagnostic polysomnography (PSG) from September 1, 2012 to August 31, 2015 were included in a retrospective analysis. Baseline clinical characteristics, PSG results and outcomes were collected to identify the frequency of and factors associated with PLMs (mild 5 to 10/h; severe  $\geq 15$ /h), PLM arousals ( $\geq 5$ /h) and moderate-severe OSA (apnea-hypopnea Index  $\geq 15$ ) including atrial fibrillation and resistant hypertension.

**RESULTS:**

Among 103 patients (mean age,  $60 \pm 15$  y; 50% female; 61% nonwhites; 77% ischemic stroke; 23% resistant hypertension) who underwent PSG, 20% had mild PLMs, 28% had severe PLMs, 14% had PLM arousals, and 22% had moderate-severe OSA. Factors associated with moderate-severe OSA included older age (odds ratio, 1.06; 95% confidence interval, 1.02-1.11) and presence of atrial fibrillation (odds ratio, 4.26; 95% confidence interval, 1.17-15.44). Nonwhite race was associated with lower likelihood of mild and severe PLMs, whereas female sex was associated with lower likelihood of PLM arousals. OSA and PLMs were not associated with resistant hypertension.

**CONCLUSIONS:**

A significant number of stroke and TIA patients who underwent PSG have PLMs and moderate-severe OSA. Stroke and TIA patients with atrial fibrillation are more likely to have moderate-severe OSA and may benefit from PSG evaluation.

## 14. HEADACHES

### Posture and strength in TT headache patients

#### CLINICAL TRIAL REPORT

#### Neck/shoulder function in tension-type headache patients and the effect of strength training

**Authors** Madsen BK, Søgaard K, Andersen LL, Skotte J, Tornøe B, Jensen RH

**DOI** <https://doi.org/10.2147/JPR.S146050>

**Introduction:** Muscle pain has been associated with reduced maximal muscle strength, and reduced rate of force development (RFD). Strength training (ST) has shown an effect in not only normalizing muscle function but also reducing neck muscle pain.

**Aim:** The aims of this study were to compare muscle function in terms of strength, force steadiness in neck flexion, as well as extension, and rate of RFD of the shoulder in tension-type headache (TTH) patients and healthy controls and to examine the correlation to tenderness. Furthermore, the aim of the study was to examine the effect of ST on neck and shoulder functions in TTH patients.

**Participants and methods:** In all, 60 TTH patients and 30 sex- and age-matched healthy controls were included for a case–control comparison. The 60 patients with TTH were randomized into an ST and an ergonomic and posture correction (EP) control group. The ST group trained for 10 weeks with elastic bands.

**Results:** TTH patients had a lower extension force steadiness with a significant 15% higher coefficient of variation (CoV) compared to healthy controls ( $p=0.047$ ). A significantly lower RFD (25%) was noted in the TTH group than in the healthy controls ( $p=0.031$ ). A significant ( $p<0.01$ ) and moderate correlation to muscle tenderness was found. In the intervention, 23 patients completed ST and 21 patients completed EP. No significant between-group effect was observed, but at 22 weeks follow-up, both groups had a significant within-group effect of improved extension force steadiness (ST:  $p=0.011$  and EP:  $p<0.01$ ).

**Conclusion:** TTH patients showed a deteriorated muscle function, indicated by a lower force steadiness and RFD, compared to the healthy controls. The effect of ST was not larger than EP as both groups of TTH patients showed some improvement in neck and shoulder functions during the 10 weeks intervention and at follow-up. Future interventions are needed to elucidate if normalization of muscle function can lead to a reduction in headache.

**Keywords:** tension-type headache, force steadiness, rate of force development, strength training, ergonomic, posture correction



**20 A. ROTATOR CUFF****Biceps tendon rupture and RC pathology**

J Shoulder Elbow Surg. 2018 Feb 22. pii: S1058-2746(18)30051-X. doi: 10.1016/j.jse.2018.01.006.

**The prevalence of rotator cuff pathology in the setting of acute proximal biceps tendon rupture.**

Vestermark GL<sup>1</sup>, Van Doren BA<sup>1</sup>, Connor PM<sup>1</sup>, Fleischli JE<sup>1</sup>, Piasecki DP<sup>1</sup>, Hamid N<sup>2</sup>.

*BACKGROUND:*

The prevalence and severity of concomitant rotator cuff pathology in the setting of proximal biceps tendon ruptures are poorly understood. Concomitant rotator cuff disease may have important implications in the prognosis and natural history of this shoulder condition. Therefore, an observational cohort of patients with an acute rupture of the long head of the biceps tendon (LHBT) was evaluated to determine the prevalence and severity of concomitant rotator cuff disease.

*METHODS:*

Thirty consecutive patients diagnosed with acute proximal biceps tendon rupture were prospectively enrolled. Magnetic resonance imaging of the affected shoulder was obtained in 27 patients and reviewed by a fellowship-trained orthopedic surgeon.

*RESULTS:*

The cohort consisted of 20 men (74%) and 7 women (26%) (mean age, 61.0 years [range, 42-78 years]). The dominant side was involved in 20 injuries (74%), and a low-energy trauma mechanism of injury was involved in 23 (85%). Of the patients, 11 (41%) reported a history of antecedent shoulder pain. Magnetic resonance imaging assessment revealed that 93% of patients had evidence of rotator cuff disease, including 13 full-thickness tears. Of the full-thickness tears, 3 were small, 6 medium, 2 large, and 2 massive. Pathology of the subscapularis tendon was identified in 7 patients (26%).

*CONCLUSION:*

In this cohort, we found LHBT rupture to be highly correlated with the presence of rotator cuff disease, with the majority of patients presenting with full-thickness tears of the supraspinatus. These findings may have important implications in the treatment and prognosis of patients who present with acute LHBT ruptures.

**28. REPLACEMENTS****Gait after**

Osteoarthritis Cartilage. 2018 Feb 21. pii: S1063-4584(18)31013-6. doi: 10.1016/j.joca.2018.02.897.

**Biomechanical changes and recovery of gait function after total hip arthroplasty for osteoarthritis: a systematic review and meta-analysis.**

Bahl JS<sup>1</sup>, Nelson MJ<sup>2</sup>, Taylor M<sup>3</sup>, Solomon LB<sup>4</sup>, Arnold JB<sup>5</sup>, Thewlis D<sup>6</sup>.

**OBJECTIVE:**

To determine the change in walking gait biomechanics after total hip arthroplasty (THA) for osteoarthritis (OA) compared to the pre-operative gait status, and to compare the recovery of gait following THA with healthy individuals.

**METHODS:**

Systematic review with meta-analysis of studies investigating changes in gait biomechanics after THA compared to (1) preoperative levels and (2) healthy individuals. Data were pooled at commonly reported time points and standardised mean differences (SMDs) were calculated in meta-analyses for spatiotemporal, kinematic and kinetic parameters.

**RESULTS:**

Seventy-four studies with a total of 2,477 patients were included. At 6 weeks postoperative, increases were evident for walking speed (SMD: 0.32, 95% confidence intervals (CI) 0.14, 0.50), stride length (SMD: 0.40, 95% CI 0.19, 0.61), step length (SMD: 0.41, 95% CI 0.23, 0.59), and transverse plane hip range of motion (ROM) (SMD: 0.36, 95% CI 0.05, 0.67) compared to pre-operative gait. Sagittal, coronal and transverse hip ROM was significantly increased at 3 months (SMDs: 0.50 to 1.07). At 12 months postoperative, patients demonstrated deficits compared with healthy individuals for walking speed (SMD: -0.59, 95% CI -1.08 to -0.11), stride length (SMD: -1.27, 95% CI -1.63, -0.91), single limb support time (SMD: -0.82, 95% CI -1.23, -0.41) and sagittal plane hip ROM (SMD: -1.16, 95% CI -1.83, -0.49). Risk of bias scores ranged from seven to 24 out of 26.

**CONCLUSIONS:**

Following THA for OA, early improvements were demonstrated for spatiotemporal and kinematic gait patterns compared to the pre-operative levels. Deficits were still observed in THA patients compared to healthy individuals at 12 months.

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**KEYWORDS:**

Arthroplasty; Biomechanics; Gait analysis; Hip replacement; Osteoarthritis

PMID: 29474993 DOI: 10.1016/j.joca.2018.02.897

**32 A. KNEE/ACL****Inflammatory markers following injury and repair**

J Orthop Res. 2017 Oct;35(10):2288-2297. doi: 10.1002/jor.23534. Epub 2017 Mar 2.

**Biochemical markers of cartilage metabolism are associated with walking biomechanics 6-months following anterior cruciate ligament reconstruction.**

Pietrosimone B<sup>1,2</sup>, Loeser RF<sup>3</sup>, Blackburn JT<sup>1,2</sup>, Padua DA<sup>1,2</sup>, Harkey MS<sup>2</sup>, Stanley LE<sup>2</sup>, Luc-Harkey BA<sup>2</sup>, Ulici V<sup>3</sup>, Marshall SW<sup>4</sup>, Jordan JM<sup>3</sup>, Spang JT<sup>5</sup>.

The purpose of our study was to determine the association between biomechanical outcomes of walking gait (peak vertical ground reaction force [vGRF], vGRF loading rate [vGRF-LR], and knee adduction moment [KAM]) 6 months following anterior cruciate ligament reconstruction (ACLR) and biochemical markers of serum type-II collagen turnover (collagen type-II cleavage product to collagen type-II C-propeptide [C2C:CPII]), plasma degenerative enzymes (matrix metalloproteinase-3 [MMP-3]), and a pro-inflammatory cytokine (interleukin-6 [IL-6]).

Biochemical markers were evaluated within the first 2 weeks ( $6.5 \pm 3.8$  days) following ACL injury and again 6 months following ACLR in eighteen participants. All peak biomechanical outcomes were extracted from the first 50% of the stance phase of walking gait during a 6-month follow-up exam. Limb symmetry indices (LSI) were used to normalize the biomechanical outcomes in the ACLR limb to that of the contralateral limb (ACLR/contralateral). Bivariate correlations were used to assess associations between biomechanical and biochemical outcomes. Greater plasma MMP-3 concentrations after ACL injury and at the 6-month follow-up exam were associated with lesser KAM LSI. Lesser KAM was associated with greater plasma IL-6 at the 6-month follow-up exam. Similarly, lesser vGRF-LR LSI was associated with greater plasma MMP-3 concentrations at the 6-month follow-up exam. Lesser peak vGRF LSI was associated with higher C2C:CPII after ACL injury, yet this association was not significant after accounting for walking speed.

Therefore, lesser biomechanical loading in the ACLR limb, compared to the contralateral limb, 6 months following ACLR may be related to deleterious joint tissue metabolism that could influence future cartilage breakdown. © 2017 Orthopaedic Research Society. Published by Wiley Periodicals, Inc. J Orthop Res 35:2288-2297, 2017.

**KEYWORDS:**

collagen; interleukin; knee adduction moment; matrix metalloproteinase-3; osteoarthritis

PMID: \28150869 MCID: PMC5540809 DOI: 10.1002/jor.23534

**Patella tendon**

Knee Surg Sports Traumatol Arthrosc. 2018 Mar 3. doi: 10.1007/s00167-018-4881-y.

**Bone-patellar tendon-bone autograft could be recommended as a superior graft to hamstring autograft for ACL reconstruction in patients with generalized joint laxity: 2- and 5-year follow-up study.**

Kim SJ<sup>1</sup>, Choi CH<sup>2</sup>, Kim SH<sup>2</sup>, Lee SK<sup>3</sup>, Lee W<sup>2</sup>, Kim T<sup>2</sup>, Jung M<sup>4</sup>.

**PURPOSE:**

The present study aimed to compare 2- and 5-year outcomes of ACL reconstruction between patients with and without generalized joint laxity and to perform comparative evaluation between two types of grafts used for ACL reconstruction in patients with generalized joint laxity.

**METHODS:**

Two hundred and thirty-seven patients who underwent ACL reconstruction from 2001 to 2008 were included. Patients were classified into two groups according to the presence or the absence of generalized joint laxity, and further subdivided into two subgroups based on the type of graft used: bone-patellar tendon-bone (BPTB) or hamstring. Generalized joint laxity was assessed with the Beighton and Horan criteria using a point scoring system. Stability reflected by the Lachman test, pivot-shift test, and anterior translation measured with KT-2000, and functional outcomes reflected by Lysholm knee score, and International Knee Documentation Committee (IKDC) subjective score were investigated. IKDC objective grade and radiographic grade were also assessed. Clinical assessments were conducted preoperatively and at 2 and 5 years after operation.

**RESULTS:**

Two-year follow-up results showed that patients with generalized joint laxity receiving hamstring grafts had poorer outcomes than those without generalized joint laxity. Five-year follow-up results showed that patients with generalized joint laxity experienced poorer outcomes than patients without generalized joint laxity, irrespective of the type of graft. Comparison of grafts used showed that, in patients with generalized joint laxity, BPTB graft provided significantly better stability and functional outcomes than hamstring graft at both 2- and 5-year follow-ups. Comparisons between serial outcomes measured at 2 and 5 years demonstrated that stability and functional outcomes deteriorated over time in patients with generalized joint laxity.

**CONCLUSIONS:**

Less satisfactory stability and functional outcomes were noted in patients with generalized joint laxity, compared to patients without generalized joint laxity. Comparisons of stability and functional outcomes after ACL reconstruction in patients with generalized joint laxity between two different grafts demonstrated that BPTB graft achieves better results than hamstring graft.

**LEVEL OF EVIDENCE:** III, a retrospective cohort study.

**KEYWORDS:** Anterior cruciate ligament reconstruction; Bone-patellar tendon-bone; Generalized joint laxity; Graft; Hamstring; Risk factor  
PMID: 29502168 DOI: 10.1007/s00167-018-4881-y

### 33. MENISCUS

#### Balance changes in medial and lateral tears

The Knee

#### Comparative postural stability in patients with lateral meniscus versus medial meniscus tears

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<https://doi.org/10.1016/j.knee.2018.01.012>

Instability may differ between patients with medial and lateral meniscus tears. However, to date, postural stability has not been compared in patients with medial and lateral meniscus tears. This study used stabilometry to compare postural stability in patients with medial and lateral meniscus tears.

#### Methods

Postural stability and thigh muscle strength were assessed in 24 patients with medial and 18 patients with lateral meniscus tears. Postural stability was determined by measuring the anteroposterior (APSI), mediolateral (MLSI), and overall (OSI) stability indices using stabilometry. Maximal torque (60°/s) of the quadriceps and hamstring was evaluated using an isokinetic testing device.

#### Results

The three stability indices, OSI, APSI, and MLSI, in both involved and uninvolved knees were all significantly greater in patients with lateral than with medial meniscus tears.

( $P < 0.001$  for all OSI, APSI, and MLSI in both involved and uninvolved knees, except for  $P = 0.005$  for MLSI of involved knees). In patients with medial meniscus tears, both OSI ( $1.4 \pm 0.4$  vs.  $1.1 \pm 0.4$ ,  $P = 0.037$ ) and MLSI ( $0.9 \pm 0.3$  vs.  $0.8 \pm 0.3$ ,  $P = 0.041$ ) were significantly higher on the injured than the uninjured side. In patients with lateral meniscus tears, none of the stability indices differed significantly between injured and uninjured knee joints.

#### Conclusion

Postural stability of both the injured and uninjured knee joints was poorer in patients with lateral than with medial meniscus tears.

**40. ANKLE SPRAINS AND INSTABILITY****Predictions in soccer players**

Int J Sports Phys Ther. 2018 Feb;13(1):12-18.

**ACUTE LATERAL ANKLE SPRAIN PREDICTION IN COLLEGIATE WOMEN'S SOCCER PLAYERS.**

McCann RS<sup>1</sup>, Kosik KB<sup>2</sup>, Terada M<sup>3</sup>, Beard MQ<sup>4</sup>, Buskirk GE<sup>5</sup>, Gribble PA<sup>2</sup>.

*BACKGROUND:*

Women's soccer has among the highest injury rates in collegiate sports, and lateral ankle sprains (LAS) are among the most commonly occurring injuries in that athletic population. However, no established LAS prediction model exists for collegiate women's soccer players. The purpose of this study was to develop a prediction model for acute LAS injuries in collegiate women's soccer players utilizing previous ankle sprain history, height, mass, and BMI as potential predictors. The authors' hypothesized that collegiate women's soccer players with greater height, mass, and body mass index (BMI), as well as a previous history of ankle sprain would have greater odds of sustaining a LAS.

*STUDY DESIGN:*

Prospective cohort study.

*METHODS:*

Forty-three NCAA Division I women's soccer players' ( $19.7 \pm 1.1$  yrs,  $166.8 \pm 3.7$  cm,  $60.8 \pm 4.4$  kg) height, mass, and BMI were measured one week before beginning preseason practices. Additionally, participants reported whether or not they had sustained a previous ankle sprain. The team athletic trainer tracked LASs over the competitive season. Independent t-tests, binary logistic regression analyses, receiver operating characteristic (ROC) curves, and diagnostic statistics assessed the ability of the variables to differentiate between those that did and did not sustain a LAS.

*RESULTS:*

Participants that sustained a LAS ( $n = 8$ ) were significantly taller than those that did not sustain a LAS ( $n = 35$ ) ( $t_{41} = -2.87$ ,  $p = 0.01$ ,  $d = 0.83[0.03, 1.60]$ ). A logistic regression analysis (odds ratio =  $1.30[1.00, 1.70]$ ) and area under the ROC curve analysis (AUROC =  $0.73[0.58, 0.89]$ ,  $p = 0.04$ ) further exhibited predictive value of height. A height cutoff score of 167.6 cm demonstrated excellent sensitivity (0.88), moderate specificity (0.51), and a favorable diagnostic odds ratio (7.5). A logistic regression analysis (odds ratio =  $1.87[1.22, 1.98]$ ) exhibited predictive value of previous ankle sprain history. That variable was also associated with good sensitivity (0.75) and specificity (0.71) within the model, as well as a favorable DOR (7.37). Mass and BMI demonstrated no predictive value for LAS.

**CONCLUSION:** Taller collegiate women's soccer players and those with previous ankle sprain history may have a greater predisposition to LAS.

**LEVEL OF EVIDENCE:** 1b.

**KEYWORDS:** Ankle sprain; injury prediction; women's soccer

PMID: 29484237 PMCID: PMC5808007

**62 A. NUTRITION/VITAMINS****Nut consumption and reduced colon CA**

J Clin Oncol. 2018 Feb 28;JCO2017755413. doi: 10.1200/JCO.2017.75.5413.

**Nut Consumption and Survival in Patients With Stage III Colon Cancer: Results From CALGB 89803 (Alliance).**

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**Purpose** Observational studies have reported increased colon cancer recurrence and mortality in patients with states of hyperinsulinemia, including type 2 diabetes, obesity, sedentary lifestyle, and high glycemic load diet. Nut intake has been associated with a lower risk of type 2 diabetes, metabolic syndrome, and insulin resistance. However, the effect of nut intake on colon cancer recurrence and survival is not known. Patients and

**Methods** We conducted a prospective, observational study of 826 eligible patients with stage III colon cancer who reported dietary intake on food frequency questionnaires while enrolled onto a randomized adjuvant chemotherapy trial. Using Cox proportional hazards regression, we assessed associations of nut intake with cancer recurrence and mortality.

**Results** After a median follow-up of 6.5 years, compared with patients who abstained from nuts, individuals who consumed two or more servings of nuts per week experienced an adjusted hazard ratio (HR) for disease-free survival of 0.58 (95% CI, 0.37 to 0.92;  $P_{\text{trend}} = .03$ ) and an HR for overall survival of 0.43 (95% CI, 0.25 to 0.74;  $P_{\text{trend}} = .01$ ). In subgroup analysis, the apparent benefit was confined to tree nut intake (HR for disease-free survival, 0.54; 95% CI, 0.34 to 0.85;  $P_{\text{trend}} = .04$ ; and HR for overall survival, 0.47; 95% CI, 0.27 to 0.82;  $P_{\text{trend}} = .04$ ). The association of total nut intake with improved outcomes was maintained across other known or suspected risk factors for cancer recurrence and mortality.

**Conclusion** Diets with a higher consumption of nuts may be associated with a significantly reduced incidence of cancer recurrence and death in patients with stage III colon cancer.

PMID: 29489429 DOI: 10.1200/JCO.2017.75.5413

### Egg shell membrane and post ex joint pain

#### **Beneficial effects of natural eggshell membrane vs placebo in exercise-induced joint pain, stiffness, and cartilage turnover in healthy, postmenopausal women**

Clinical Interventions in Aging — 1 March 07, 2018

Ruff KJ, et al.

Whether NEM (natural eggshell membrane) would reduce exercise-induced cartilage turnover or alleviate joint pain or stiffness, either directly following exercise or 12 hours post exercise, compared with placebo, was investigated herein. Healthy, postmenopausal women who received NEM demonstrated rapidly improved recovery from exercise-induced joint pain (Day 8) and stiffness (Day 4) and reduced discomfort immediately following exercise (stiffness, Day 7). Furthermore, a substantial chondroprotective effect was demonstrated via a decrease in the cartilage degradation biomarker C-terminal cross-linked telopeptide of type-II collagen.



**63. PHARMACOLOGY****Opioid no more helpful than non-opioids**

JAMA. 2018 Mar 6;319(9):872-882. doi: 10.1001/jama.2018.0899.

**Effect of Opioid vs Nonopioid Medications on Pain-Related Function in Patients With Chronic Back Pain or Hip or Knee Osteoarthritis Pain: The SPACE Randomized Clinical Trial.**

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**IMPORTANCE:** Limited evidence is available regarding long-term outcomes of opioids compared with nonopioid medications for chronic pain.

**OBJECTIVE:** To compare opioid vs nonopioid medications over 12 months on pain-related function, pain intensity, and adverse effects.

**DESIGN, SETTING, AND PARTICIPANTS:** Pragmatic, 12-month, randomized trial with masked outcome assessment. Patients were recruited from Veterans Affairs primary care clinics from June 2013 through December 2015; follow-up was completed December 2016. Eligible patients had moderate to severe chronic back pain or hip or knee osteoarthritis pain despite analgesic use. Of 265 patients enrolled, 25 withdrew prior to randomization and 240 were randomized.

**INTERVENTIONS:** Both interventions (opioid and nonopioid medication therapy) followed a treat-to-target strategy aiming for improved pain and function. Each intervention had its own prescribing strategy that included multiple medication options in 3 steps. In the opioid group, the first step was immediate-release morphine, oxycodone, or hydrocodone/acetaminophen. For the nonopioid group, the first step was acetaminophen (paracetamol) or a nonsteroidal anti-inflammatory drug. Medications were changed, added, or adjusted within the assigned treatment group according to individual patient response.

**MAIN OUTCOMES AND MEASURES:** The primary outcome was pain-related function (Brief Pain Inventory [BPI] interference scale) over 12 months and the main secondary outcome was pain intensity (BPI severity scale). For both BPI scales (range, 0-10; higher scores = worse function or pain intensity), a 1-point improvement was clinically important. The primary adverse outcome was medication-related symptoms (patient-reported checklist; range, 0-19).

**RESULTS:** Among 240 randomized patients (mean age, 58.3 years; women, 32 [13.0%]), 234 (97.5%) completed the trial. Groups did not significantly differ on pain-related function over 12 months (overall  $P = .58$ ); mean 12-month BPI interference was 3.4 for the opioid group and 3.3 for the nonopioid group (difference, 0.1 [95% CI, -0.5 to 0.7]). Pain intensity was significantly better in the nonopioid group over 12 months (overall  $P = .03$ ); mean 12-month BPI severity was 4.0 for the opioid group and 3.5 for the nonopioid group (difference, 0.5 [95% CI, 0.0 to 1.0]). Adverse medication-related symptoms were significantly more common in the opioid group over 12 months (overall  $P = .03$ ); mean medication-related symptoms at 12 months were 1.8 in the opioid group and 0.9 in the nonopioid group (difference, 0.9 [95% CI, 0.3 to 1.5]).

**CONCLUSIONS AND RELEVANCE:**

Treatment with opioids was not superior to treatment with nonopioid medications for improving pain-related function over 12 months. Results do not support initiation of opioid therapy for moderate to severe chronic back pain or hip or knee osteoarthritis pain.

**65. NEUROLOGICAL CONDITIONS****MS and pain**

J Pain Res. 2018 Feb 13;11:325-334. doi: 10.2147/JPR.S146717. eCollection 2018.

**Psychiatric and physical comorbidities and pain in patients with multiple sclerosis.**

Scherder R<sup>1</sup>, Kant N<sup>2</sup>, Wolf ET<sup>3</sup>, Pijnenburg B<sup>4</sup>, Scherder EJ<sup>3</sup>.

**BACKGROUND:**

It has been observed that patients with multiple sclerosis (MS), who have psychiatric and physical comorbidities such as depression and COPD, have an increased risk of experiencing more pain. In this study, we have distinguished between pain intensity and pain affect, as the latter, particularly, requires treatment. Furthermore, while pain and comorbidities have been assessed using questionnaires, this is possibly a less reliable method for those who are cognitively vulnerable.

**OBJECTIVE:**

The aim of this study was to determine whether psychiatric and physical comorbidities can predict pain intensity and pain affect in MS patients, susceptible to cognitive impairment.

**METHODS:**

Ninety-four patients with MS and 80 control participants participated in this cross-sectional study. Besides depression and anxiety, 47 additional comorbidities were extracted from patients' medical records. Depression and anxiety were assessed using the Beck Depression Inventory and the Symptom Check List-90. Pain was assessed using the Number of Words Chosen Affective, Coloured Analog Scale, and the Faces Pain Scale. Cognitive functions, for example, memory and executive functions, were assessed using several neuropsychological tests.

**RESULTS:**

The main findings indicate that psychiatric comorbidities (depression and anxiety) predict both pain intensity and pain affect and that total physical comorbidity predicts only pain affect in MS patients, susceptible to cognitive impairment.

**CONCLUSION:**

Both psychiatric and physical comorbidities predict pain affect. All three clinical outcomes enhance MS patients' suffering.

**KEYWORDS:**

cognition; comorbidities; mood; multiple sclerosis; pain PMID: 29491716 PMCID: PMC5815482 DOI: 10.2147/JPR.S146717