

## 2. LBP

### Inflammation, obesity and LBP

Spine (Phila Pa 1976). 2018 Sep 1;43(17):1218-1224. doi: 10.1097/BRS.0000000000002582.

#### **Exploration of the Inter-Relationships Between Obesity, Physical Inactivity, Inflammation, and Low Back Pain.**

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#### *STUDY DESIGN:*

Retrospective analysis wherein 103 patients were considered, and 76 patients were included: 49 were classified as chronic non-specific low back pain (CNSLBP) (Study group) and 27 had identifiable cases of specific chronic low back pain (LBP) (Control group).

#### *OBJECTIVE:*

Elucidate markers of systemic inflammation in patients with CNSLBP.

#### *SUMMARY OF BACKGROUND DATA:*

Mechanisms of LBP are poorly understood. Pro-inflammatory cytokines are increased in obesity and involved with pain modulation; we previously proposed a theoretical model of their mediating role in LBP.

#### *METHODS:*

Demographic information was acquired via questionnaire, chart review, and blood test data. Univariate analysis identified factors associated with CNSLBP and markers of systemic inflammation. A receiver operating curve and Youden Index were used to select optimal cut-off points for elevated C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR). Multivariable logistic regression analysis calculated the adjusted strength of relationship between factors that were proposed in our theoretical model for CNSLBP.

#### *RESULTS:*

Unadjusted CRP was significantly correlated with ESR ( $R=0.63$ ,  $P<0.0001$ ) and body mass index (BMI) ( $R=0.38$ ,  $P=0.0015$ ). Physically inactive patients had significantly higher CRP (6.1 vs. 1.2,  $P=0.0050$ ). ESR was significantly correlated with number of comorbidities ( $R=0.34$ ,  $P=0.0047$ ), BMI ( $R=0.38$ ,  $P=0.0014$ ), and age ( $R=0.36$ ,  $P=0.0026$ ). Physically inactive patients (10.4 vs. 3.6,  $P=0.0001$ ) and females (11.2 vs. 6.4,  $P=0.0422$ ) had significantly higher ESR. Adjusted analyses indicated significant relationships between physical inactivity and markers of systemic inflammation (adjusted odds ratios for ESR and CRP: 15.9,  $P=0.0380$ ; 15.2,  $P=0.0272$ , respectively), and between elevated CRP and CNSLBP (adjusted odds ratio: 8.0,  $P=0.0126$ ).

#### *CONCLUSION:*

Systemic inflammation may act as a mediator for physical inactivity and obesity in the pathogenesis of CNSLBP.

**Duration of pain impacts outcomes**

Spine (Phila Pa 1976). 2018 Sep 1;43(17):E998-E1004. doi: 10.1097/BRS.0000000000002612.

**Does Duration of Pain at Baseline Influence Clinical Outcomes of Low Back Pain Patients Managed on an Evidence-based Pathway?**

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**STUDY DESIGN:**

Longitudinal observational study.

**OBJECTIVE:**

To investigate the association between the duration of pain at baseline and the clinical outcomes of patients with low back pain (LBP) enrolled on the North East of England Regional Back Pain and Radicular Pain Pathway (NERBPP).

**SUMMARY OF BACKGROUND DATA:**

The NERBPP is a clinical pathway based upon National Institute for Health and Care Excellence (NICE) guidelines (2009) for LBP of <1-year duration. Recent changes to NICE guidelines (2016) advocate the same management for all LBP patients regardless of pain duration.

**METHODS:**

Patients with LBP referred onto the NERBPP by their General Practitioner between May 2015 and January 2017 were included. Data from 667 patients, who provided pre- and post data for pain (Numerical rating scale), function (Oswestry Disability Index), quality-of-life (EuroQol five-dimension, five-level questionnaire), anxiety (the Generalized Anxiety Disorder Screener), and depression (the Patient Health Questionnaire), were analyzed using a series of covariate-adjusted models. Patients were categorized into four groups based upon baseline pain duration: <3 months, ≥3 to <6 months, ≥6 months to <12 months, ≥12 months.

**RESULTS:**

Each group showed improved outcomes greater than the minimal clinically important difference (MCID) for each measure as defined in NICE guidelines (2016). There was a trend toward better outcomes for those with shorter pain durations. The magnitude of the differences between the groups, in most instances, was below the MCID. For example, mean improvement in function for those with baseline pain duration <3 months was 20 points and 12 points for those of pain duration ≥12 months, both above the MCID of ≥10.

**CONCLUSION:**

Patients with different durations of LBP at baseline improved on the NERBPP, supporting the recent modification to NICE guidelines. However, those with shorter durations of pain may have superior outcomes in the short term, suggesting added benefit in getting patients onto the pathway in the early stages of LBP.

## 8. VISCERA

### CD in osteoporosis

#### **Systematic review with meta-analysis: the prevalence of coeliac disease in patients with osteoporosis**

M. Laszkowska S. Mahadev J. Sundström B. Lebwohl P. H. R. Green K. Michaelsson  
J. F. Ludvigsson

<https://doi.org/10.1111/apt.14911>

#### **Background**

Earlier studies have produced highly varying risk estimates for the prevalence of coeliac disease (CD) in osteoporosis.

#### **Aims**

To investigate the prevalence of CD among individuals with osteoporosis.

#### **Methods**

We conducted a systematic review of articles published in PubMed, Medline or EMBASE through May 2017 to identify studies looking at prevalence of CD in patients with osteoporosis. Search terms included “coeliac disease” combined with “fractures”, “bone disease”, “bone density”, “densitometry”, “osteoporos\*”, “osteomal\*”, “osteodys” or “dexa” or “dxa” or “skeletal”. Non-English papers with English-language abstracts were included. We used fixed-effects inverse variance-weighted models, and tested heterogeneity through subgroup analysis as well as through meta-regression.

#### **Results**

We identified eight relevant studies, comprising data from 3188 individuals with osteoporosis. Of these, 59 individuals (1.9%) had CD. A weighted pooled analysis demonstrated biopsy-confirmed CD in 1.6% (95% CI = 1.1%-2.0%) of individuals with osteoporosis. The heterogeneity was moderate ( $I^2 = 40.1\%$ ), and influenced by the underlying CD prevalence in the general population. After adding four studies (n = 814) with CD defined as positive tissue transglutaminase or endomysial antibodies, the pooled prevalence was comparable (1.6%; 95% CI = 1.2%-2.0%).

#### **Conclusions**

About 1 in 62 individuals with osteoporosis, or 1.6%, have biopsy-verified CD. This prevalence is comparable to that in the general population. These findings argue against routinely screening patients with osteoporosis for CD, which is contrary to current guideline recommendations. Additional studies are needed to determine the true utility of such screening programs.

## Second hand smoke and

**American Journal of Preventive Medicine****Research article****Secondhand Smoke Exposure in Childhood and Adulthood in Relation to Adult Mortality Among Never Smokers**

W. Ryan Diver MSPH, Eric J. Jacobs PhD, Susan M. Gapstur PhD

<https://doi.org/10.1016/j.amepre.2018.05.005> Get rights and content**Introduction**

Secondhand smoke is known to have adverse effects on the lung and vascular systems in both children and adults. It is unknown if childhood exposure to secondhand smoke is associated with adult mortality.

**Methods**

The authors examined associations of childhood and adult secondhand smoke exposure with death from all causes, ischemic heart disease, stroke, and chronic obstructive pulmonary disease among 70,900 never smoking men and women, predominantly aged  $\geq 50$  years, from the Cancer Prevention Study–II Nutrition Cohort in 1992–1993. There were 25,899 participant deaths during follow-up through 2014. During 2016–2017, Cox proportional hazards regression models were used to calculate multivariable-adjusted hazard ratios and 95% CIs.

**Results**

Childhood secondhand smoke exposure was not associated with all-cause mortality. However, childhood secondhand smoke (living with a smoker for 16–18 years during childhood) was associated with higher mortality from chronic obstructive pulmonary disease (hazard ratio=1.31, 95% CI=1.05, 1.65). Adult secondhand smoke exposure of  $\geq 10$  hours/week at enrollment was associated with a higher risk of all-cause (hazard ratio=1.09, 95% CI=1.04, 1.14); ischemic heart disease (hazard ratio=1.27, 95% CI=1.14, 1.42); stroke (hazard ratio=1.23, 95% CI=1.04, 1.45); and chronic obstructive pulmonary disease (hazard ratio=1.42, 95% CI=0.97, 2.09) mortality.

**Conclusions**

These results suggest that childhood secondhand smoke exposure, as well as adult secondhand smoke exposure, increase the risk of chronic obstructive pulmonary disease death in adulthood. Consistent with previous studies, the results also show that adult secondhand smoke is meaningfully associated with higher mortality from vascular disease and all causes. Overall, these findings provide further evidence for reducing secondhand smoke exposure throughout life.

## IBS and allergies

## Clinical Allergy - Research Article

**Association between Allergic Diseases and Irritable Bowel Syndrome: A Retrospective Study**Fang Z.-Y.<sup>a,b</sup> · Zhang H.-T.<sup>b</sup> · Lu C.<sup>b</sup> · Lu Q.-M.<sup>a</sup> · Yu C.-H.<sup>b</sup> · Wang H.-Y.<sup>c</sup>

Int Arch Allergy Immunol

<https://doi.org/10.1159/000489611>

**Background:** The relationship between allergic disease and irritable bowel syndrome (IBS) is poorly understood. We aimed to investigate the potential association as well as the underlying immunological mechanisms.

**Methods:** A retrospective case-control study of 108 atopic patients from among outpatients in an allergy clinic (allergic rhinitis [AR],  $n = 49$ ; chronic urticaria [CU],  $n = 59$ ) and 74 controls from among ward companions was conducted from November 2016 to March 2017. The detection rates and related gastrointestinal (GI) symptoms of IBS, as well as immunological indices, were calculated.

**Results:** CU patients had a trend of increase in the detection of IBS compared to controls (OR = 4.846; 95% CI 0.967–24.279,  $p = 0.077$ ). Loose stools (OR = 2.406; 95% CI 1.075–5.386,  $p < 0.05$ ) and viscous stools (OR = 2.665; 95% CI 1.250–5.682,  $p < 0.05$ ) were more common in CU patients. Atopic patients positive for serum total immunoglobulin E (IgE) (OR = 3.379; 95% CI 1.088–10.498,  $p < 0.05$ ) or house dust mite (HDM)-specific IgE (OR = 3.640; 95% CI 1.228–10.790,  $p < 0.05$ ) were more likely to have abdominal bloating. Besides, a positive association between levels of total IgE and severity of abdominal bloating was observed ( $p < 0.05$ ). An HDM-specific IgE-positive reaction was independently associated with abdominal bloating in atopic patients ( $p < 0.05$ ).

**Conclusions:** Allergic disease has a clear clinical association with IBS with more frequent and severe symptoms of IBS. CU patients have a tendency to suffer from IBS, usually with diarrhea. Serum total IgE and HDM-specific IgE are positively correlated with GI symptoms in atopic patients.

**Fish intake****Fish intake and risk of mortality due to aortic dissection and aneurysm: A pooled analysis of the Japan Cohort Consortium**

Kazumasa Yamagishi Hiroyasu Iso Taichi Shimazu Akiko Tamakoshi Norie Sawada Keitaro Matsuo  
Shizuka Sasazuki

DOI: <https://doi.org/10.1016/j.clnu.2018.08.007>

**Highlights**

- Fish intake has been hypothesized to have a protective role for developing aortic diseases (dissection and aneurysm), but no epidemiological studies exist on this issue.
- In this pooled analysis of more than 350,000 Japanese individuals, we first identified that low fish intake was a risk factor for mortality from aortic diseases among Japanese, a unique population of a large amount of fish consumption.
- A threshold was suggested between the seldom and 1-2 times/month categories of fish intake.

**Summary****Background & Aims**

Many studies have suggested that fish intake is associated with protection from risk of atherosclerotic diseases; however, this association with aortic diseases has not been elucidated worldwide. We hypothesized that fish intake is inversely associated with mortality from aortic diseases (aortic dissection and aneurysm).

**Methods**

The study was conducted as a pooled analysis of original data from a maximum of 8 cohort studies, comprising a total of 366,048 community-based men and women who had no history of cardiovascular disease or cancer. In each cohort, we used Cox proportional hazards regression to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) for mortality from aortic dissection, aneurysm and total aortic disease according to the frequency of fish intake and estimated summary HRs derived from each study.

**Results**

Nonlinear inverse associations were found between fish intake and total aortic disease. Compared with persons who ate fish 1-2 times/week, persons who seldom ate fish had higher mortality from total aortic disease (multivariable-adjusted pooled HR=1.93; 95% CI, 1.13-3.31). Higher mortality was not seen in those who ate fish 1-2 times/month. A similar pattern was observed for aortic dissection. Regarding aortic aneurysm, both persons who seldom ate fish and those who ate fish 1-2 times/month had higher mortality (HR=1.99; 95% CI, 0.90-4.40 and HR=1.86; 95% CI, 0.87-3.98, respectively).

**Conclusions**

Persons who seldom ate fish had higher mortality from aortic dissection, aneurysm, and total aortic diseases.

**13 C. AIRWAYS/SWALLOWING/SPEECH****Sleep apnea in hemodialysis patients****Original Report: Patient-Oriented, Translational Research****Obstructive Sleep Apnea Increases Sudden Cardiac Death in Incident Hemodialysis Patients**

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Am J Nephrol 2018;48:147–156  
<https://doi.org/10.1159/000489963>

**Background:** Mortality in end-stage renal disease (ESRD) occurs predominantly from cardiovascular disease (CVD) and sudden cardiac death (SCD). Obstructive sleep apnea (OSA) is characterized by periodic airflow limitation associated with sleep arousal and oxygen desaturation and is prevalent in patients with ESRD. Whether OSA increases the risk for SCD, cardiovascular and all-cause mortality among hemodialysis patients remains unknown.

**Methods:** In a prospective cohort of 558 incident hemodialysis patients, we examined the association of OSA with all-cause mortality, cardiovascular mortality, and SCD using Cox proportional hazards models controlling for traditional CVD risk factors.

**Results:** Sixty-six incident hemodialysis patients (12%) had OSA. Mean age (56 years) and percentage of males (56%) were identical in OSA and no-OSA groups. Fewer African Americans had OSA than non-African Americans (9 vs. 18%, respectively). Participants with OSA had higher body-mass index, Charlson comorbidity score, and left ventricular mass index and greater prevalence of diabetes and coronary artery disease. During 1,080 person-years of follow-up, 104 deaths occurred, 29% of which were cardiovascular. OSA was associated with a higher risk of all-cause mortality (HR 1.90 [95% CI 1.04–3.46]) and cardiovascular mortality (HR 3.62 [95% CI 1.36–9.66]) after adjusting for demographics and body-mass index. OSA was associated with a higher risk of SCD after adjusting for demographics (HR 3.28 [95% CI 1.12–9.57]) and multiple cardiovascular risk factors.

**Conclusions:** Incident hemodialysis patients with OSA are at increased risk of all-cause and cardiovascular mortality and SCD. Future studies should assess the impact of screening for OSA and OSA-targeted interventions on mortality in ESRD.

**Sleep apnea and CA**

Cancer Causes &amp; Control pp 1–8|

**Sleep apnea and subsequent cancer incidence**

- Arthur Sillah Nathaniel F. Watson Stephen M. Schwartz David Gozal Amanda I. Phipps

**Purpose**

In vitro and animal models suggest that the physiological effects of sleep apnea could contribute to cancer risk, yet epidemiologic studies have been inconsistent.

**Methods**

We identified a cohort of adults diagnosed with sleep apnea between 2005 and 2014 using regional administrative databases. Linking this cohort to a population-based cancer registry, we identified first incident cancers diagnosed after sleep apnea diagnosis through 2015. We calculated age–sex standardized cancer incidence ratios (SIRs) to compare the observed number of cancers among those with sleep apnea with expected population estimates over a comparable period.

**Results**

Among 34,402 individuals with sleep apnea, 1,575 first incident cancers were diagnosed during follow-up (mean  $\pm$  SD;  $5.3 \pm 2.0$  years). Compared to the general population, cancer incidence (SIR 1.26, 95% CI 1.20–1.32) was elevated among sleep apnea patients. We observed significantly elevated incidence for kidney (SIR 2.24, 95% CI 1.82–2.72), melanoma (SIR 1.71, 95% CI 1.42–2.03), breast (SIR 1.43, 95% CI 1.76–2.00), and corpus uteri (SIR 2.80, 95% CI 2.24–2.47) while risk for lung (SIR 0.66, 95% CI 0.54–0.79) and colorectal cancer (SIR 0.71, 95% CI 0.56–0.89) was lower.

**Conclusion**

These findings suggest an elevated cancer burden, particularly at certain sites, among individuals with diagnosed sleep apnea. Results should be interpreted with caution due to unmeasured confounders (e.g., BMI, diabetes).



## 16. CONCUSSIONS

### TBI and suicide

#### Journal Summaries in Neurology

##### Association between traumatic brain injury and risk of suicide

JAMA — Madsen T, et al. | August 17, 2018

In this nationwide registry-based retrospective cohort study, researchers explored the link between traumatic brain injury (TBI) and subsequent suicide. Compared with the general population without TBI people with medical contact for TBI had increased suicide risk.

#### Methods

- Using nationwide registers, a retrospective cohort study was conducted covering 7,418,391 people ( $\geq 10$  years) living in Denmark (1980-2014) with 164,265,624 person-years' follow-up; of them, 567,823 (7.6%) had a medical contact for TBI.
- Utilizing Poisson regression adjusted for relevant covariates, data were analyzed including fractures not involving the skull, psychiatric diagnoses, and deliberate self-harm.
- Main exposures analyzed were medical contacts for TBI recorded in the National Patient Register (1977-2014) as mild TBI (concussion), skull fracture without documented TBI, and severe TBI (head injuries with evidence of structural brain injury).
- Suicide recorded in the Danish Cause of Death register until December 31, 2014 was the main outcome.

#### Results

- According to the findings obtained, out of 34,529 people who died by suicide (mean age, 52 years [SD, 18 years]; 32.7% women; absolute rate 21 per 100,000 person-years [95% CI, 20.8-21.2]), 3,536 (10.2%) had medical contact: 2,701 with mild TBI, 174 with skull fracture without documented TBI, and 661 with severe TBI.
- It was observed that the absolute suicide rate was 41 per 100,000 person-years (95% CI, 39.2-41.9) among those with TBI compared with 20 per 100,000 person-years (95% CI, 19.7-20.1) among those with no diagnosis of TBI.
- Findings revealed that compared with those without TBI, severe TBI (absolute rate, 50.8 per 100,000 person-years; 95% CI, 46.9-54.6) was related to an IRR of 2.38 (95% CI, 2.20-2.58), whereas mild TBI (absolute rate, 38.6 per 100,000 person-years; 95% CI, 37.1-40.0), and skull fracture without documented TBI (absolute rate, 42.4 per 100,000 person-years; 95% CI, 36.1-48.7) had an IRR of 1.81 (95% CI, 1.74-1.88) and an IRR of 2.01 (95% CI, 1.73-2.34), respectively.
- Data reported that suicide risk was related to number of medical contacts for TBI vs those with no TBI contacts: one TBI contact, absolute rate, 34.3 per 100,000 person-years (95% CI, 33.0-35.7; IRR, 1.75; 95% CI, 1.68-1.83); two TBI contacts, absolute rate, 59.8 per 100,000 person-years (95% CI, 55.1-64.6; IRR, 2.31; 95% CI, 2.13-2.51); and three or more TBI contacts, absolute rate, 90.6 per 100,000 person-years (95% CI, 82.3-98.9; IRR, 2.59; 95% CI, 2.35-2.85; all *P*
- They found that compared with the general population, temporal proximity since the last medical contact for TBI was related to risk of suicide ( $P < .001$ ), with an IRR of 3.67 (95% CI, 3.33-4.04) within the first 6 months and an incidence IRR of 1.76 (95% CI, 1.67-1.86) after 7 years.

**20 A. ROTATOR CUFF****Kinesiotape****Immediate and short-term effects of kinesiotaping on muscular activity, mobility, strength and pain after rotator cuff surgery: a crossover clinical trial**

- Fabienne Reynard Philippe Vuistiner, Bertrand Léger and Michel Konzelmann

*BMC Musculoskeletal Disorders* 2018 **19**:305

<https://doi.org/10.1186/s12891-018-2169-5>

**Background**

Kinesiotape (KT) is widely used in musculoskeletal rehabilitation as an adjuvant to treatment, but minimal evidence supports its use. The aim of this study is to determine the immediate and short-term effects of shoulder KT on muscular activity, mobility, strength and pain after rotator cuff surgery.

**Methods**

Thirty-nine subjects who underwent shoulder rotator cuff surgery were tested 6 and 12 weeks post-surgery, without tape, with KT and with a sham tape (ST). KT and ST were applied in a randomized order. For each condition, the muscular activity of the upper trapezius, three parts of the deltoid and the infraspinatus were measured during shoulder flexion, and range of motion (ROM) and pain intensity were assessed. At 12 weeks, the isometric strength at 90° of shoulder flexion, related muscular activity and pain intensity were also measured. Subjects maintained the last tape that was applied for three days and recorded the pain intensity at waking up and during the day.

**Results**

Modifications in muscle activity were observed with KT and with ST. Major changes in terms of decreased recruitment of the upper trapezius were observed with KT ( $P < 0.001$ ). KT and ST also increased flexion ROM at 6 weeks ( $P = 0.004$ ), but the differences with the no tape condition were insufficient to be clinically important. No other differences between conditions were found.

**Conclusions**

Shoulder taping has the potential to decrease over-activity of the upper trapezius, but no clinical benefits of KT on ROM, strength or pain were noted in a population of subjects who underwent rotator cuff surgery.

### 25. WRIST AND HAND

#### Hand injuries and return to work

##### Journal Summaries in Orthopedics

##### **Return-to-work barriers among manual workers after hand injuries: One-year follow-up cohort study**

Archives of Physical Medicine and Rehabilitation — Marom BS, et al. | August 21, 2018  
Among male manual workers after hand injury (HI) over a 12-month follow-up, researchers ascertained the time of return to work (TRTW) in relation to multivariable predictors by analyzing data of 178 subjects with acute HI aged 22 to 65. The present data indicated that TRTW was determined by the physical capability of the hand, pain, and psychosocial factors. They found that TRTW was also affected by legal factors. Findings revealed that subjects who did not return to work (RTW) during the initial 9 months were at risk for long-term disability. Developing treatment programs for those who are at risk for not RTW, taking into consideration these factors, was suggested.

**29. OA****Weakness and OA****Individuals with mild-to-moderate hip osteoarthritis have lower limb muscle strength and volume deficits**

- Aderson Loureiro, Maria Constantinou, Laura E. Diamond Belinda Beck and
- Rod Barrett

*BMC Musculoskeletal Disorders* 2018 **19**:303

<https://doi.org/10.1186/s12891-018-2230-4>

**Background**

Individuals with advanced hip osteoarthritis (OA) exhibit generalized muscle weakness of the affected limb and so clinical practice guidelines recommend strength training for the management of hip OA. However, the extent and pattern of muscle weakness, including any between-limb asymmetries, in early stages of the disease are unclear. This study compared hip and knee muscle strength and volumes between individuals with mild-to-moderate symptomatic and radiographic hip OA and a healthy control group.

**Methods**

Nineteen individuals with mild-to-moderate symptomatic and radiographic hip OA ( $n = 12$  unilateral;  $n = 7$  bilateral) and 23 age-matched, healthy controls without radiographic hip OA or hip pain participated. Isometric strength of the hip and knee flexors and extensors, and hip abductors and adductors were measured. Hip and thigh muscle volumes were measured from lower limb magnetic resonance images. A full-factorial, two-way General Linear Model was used to assess differences between groups and between limbs.

**Results**

Participants in the hip OA group demonstrated significantly lower knee flexor, knee extensor, hip flexor, hip extensor and hip abductor strength compared to controls and had significantly lower volume of the adductor, hamstring and quadriceps groups, and gluteus maximus and gluteus minimus muscles, but not tensor fasciae latae or gluteus medius muscles. There were no between-limb strength differences or volume differences within either group.

**Conclusions**

Atrophic, bilateral hip and knee muscle weakness is a feature of individuals with mild-to-moderate hip OA. Early interventions to target muscle weakness and prevent the development of strength asymmetries that are characteristic of advanced hip OA appear warranted.

## Hip and knee pain

### Association of osteoarthritis risk factors with knee and hip pain in a population-based sample of 29–59 year olds in Denmark: a cross-sectional analysis

- Joyce A. C. van Tunen, George Peat, Alessio Bricca, Lars B. Larsen, ens Søndergaard, Trine Thilsing, Ewa M. Roos and Jonas B. Thorlund

*BMC Musculoskeletal Disorders* 2018 **19**:300

<https://doi.org/10.1186/s12891-018-2183-7>

#### Background

This study aimed to a) describe the prevalence of knee and hip osteoarthritis risk factors in a population of 29–59 year old individuals, b) estimate the association between persistent knee/hip pain and osteoarthritis risk factors, and c) describe the prevalence of osteoarthritis risk factors, including specific biomechanical risk factors, in individuals with prolonged persistent knee or hip pain.

#### Methods

Participants completed the “Early Detection and Prevention” pilot study questionnaire, including items on presence of knee/hip pain within the last month and osteoarthritis risk factors. Individuals reporting knee/hip problems completed a second questionnaire, including items about most problematic joint and specific biomechanical osteoarthritis risk factors. After describing the prevalence of persistent knee/hip pain and osteoarthritis risk factors among respondents stratified for sex and age, logistic regression was used to estimate the strength of associations between osteoarthritis risk factors and presence of knee/hip pain. The prevalence of prolonged persistent pain (i.e. knee/hip pain reported at both questionnaires) and osteoarthritis risk factors among respondents with prolonged persistent knee and hip pain, were described.

#### Results

Two thousand six hundred sixty-one respondents completed the first survey. The one-month prevalence of persistent knee/hip pain was 27%. Previous knee/hip injury was associated with persistent knee/hip pain for both sexes in all age groups, while a family history of osteoarthritis was associated with persistent knee/hip pain in all age groups except for 29–39 year old men. A higher BMI was associated with persistent knee/hip pain in 40–59 year old women, and 50–59 year old men. Eight hundred sixty seven respondents completed the second questionnaire. Knee/hip injuries and surgeries were more common in individuals with prolonged persistent knee than hip pain.

#### Conclusions

Knee/hip pain within the last month was frequent among individuals aged 29–59 years. Multiple known osteoarthritis risk factors were associated with presence of knee/hip pain. Joint injury and previous surgery were more common in individuals with knee than hip pain. The results support the notion that joint injury and overweight during early adulthood are signs of a trajectory towards symptomatic osteoarthritis later in life and may help earlier identification of groups at high risk of future symptomatic osteoarthritis.

**31. KNEE****Posterior capsule**

Med Sci Sports Exerc. 2018 Aug 15. doi: 10.1249/MSS.0000000000001741.

**Range of Extension Correlates with Posterior Capsule Length after Knee Remobilization.**

Zhou H<sup>1,2</sup>, Trudel G<sup>1,3</sup>, Uhthoff HK<sup>1</sup>, Laneuville O<sup>1,2</sup>.

*INTRODUCTION:*

Knee injuries are common in sports, and post-injury immobilization is often required to protect healing tissues and alleviate pain, but both the injury and the immobilization can lead to a knee contracture. Knee flexion contractures limit performance. Previous research has identified posterior knee capsule fibrosis as a contributor to immobility-induced knee flexion contractures. This study aims to measure posterior knee capsule length at various durations of remobilization after knee immobilization and to correlate with the recovery of knee range of motion.

*METHODS:*

259 male Sprague-Dawley rats had one knee extra-articularly immobilized in flexion with a Delrin® plate at a 45° angle for one of six durations: 1, 2, 4, 8, 16, or 32 weeks, followed by spontaneous remobilization after plate removal, which lasted zero, one, two, and four times the duration of immobilization. The contralateral knees served as controls. The posterior knee capsule length was measured by histomorphometry. These measures were correlated with previously published range of motion data from the same cohort of specimens.

*RESULTS:*

Knees immobilized for 1 and 2 weeks partially recovered posterior capsule length ( $P > 0.05$ ). Knees immobilized beyond 2 weeks failed to recover posterior capsule length irrespective of the duration of remobilization ( $P < 0.05$ ). The residual posterior capsule shortening correlated with the lack of knee extension ( $P < 0.003$ ).

*CONCLUSION:*

For knee injuries requiring more than 2 weeks of immobilization, unassisted remobilization will not restore posterior knee capsule shortening and the reduction in knee extension. These results support the role of the posterior capsule in knee joint contracture and the need to minimize the duration of immobility and to assist the recovery of the range of knee extension after a sport injury.

### 34. PATELLA

#### PF pain analysis

#### Journal Summaries in Family Medicine

##### **Prevalence of radiographic and MRI features of patellofemoral osteoarthritis in young and middle-aged adults with persistent patellofemoral pain**

Arthritis Care & Research — Collins NJ, et al. | August 23, 2018

In adults with persistent patellofemoral pain (PFP), authors described the prevalence of radiographic features of patellofemoral osteoarthritis (PFOA). They also ascertained the prevalence of magnetic resonance imaging (MRI) patellofemoral osteoarthritis (PFOA) and compared to age- and sex-matched controls. Moreover, they explored the radiographic and MRI prevalence across age, sex and body mass index (BMI) groups. In 20-30% of adults aged 26-50 years with persistent PFP, radiographic and MRI PFOA features were evident. The greater prevalence of radiographic and MRI PFOA was seen in those who were older, female, or with higher BMI. In individuals with PFP, findings suggested a higher prevalence of MRI PFOA vs pain-free controls, especially when defined as a full-thickness cartilage lesion with BML.

**37. OSTEOARTHRITIS/KNEE****Weight loss helps****Osteoarthritis and Cartilage**

Volume 24, Issue 6, June 2016, Pages 982-990

**Reducing progression of knee OA features assessed by MRI in overweight and obese women: secondary outcomes of a preventive RCT**

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**Summary****Objective**

To evaluate the preventive effects of a [randomized controlled trial](#) on progression of [Magnetic Resonance Imaging](#) (MRI) features of knee [osteoarthritis](#) (OA) in overweight and obese women.

**Design**

In a 2 × 2 factorial design, 2.5 years effects of a diet and exercise program and of glucosamine [sulphate](#) (double-blind, placebo-controlled) were evaluated in 407 middle-aged women with body mass index (BMI) ≥ 27 kg/m<sup>2</sup> without clinical signs of knee OA at baseline (ISRCTN 42823086). MRIs were scored with the [MRI Osteoarthritis Knee Score](#) (MOAKS). Progression was defined for bone marrow lesions (BMLs), cartilage defects, osteophytes, meniscal abnormalities and meniscal extrusion. Analyses on knee level were performed over the four intervention groups using adjusted Generalized Estimating Equations (GEE).

**Results**

687 knees of 347 women with mean age 55.7 years (±3.2 SD) and mean BMI 32.3 kg/m<sup>2</sup>(±4.2 SD) were analyzed. Baseline prevalence was 64% for BMLs, 70% for cartilage defects, 24% for osteophytes, 66% for meniscal abnormalities and 52% for meniscal extrusions. The diet and exercise program + placebo intervention showed significantly less progression of meniscal extrusion compared to placebo only (12% vs 22%, OR 0.50, 95% CI [0.27–0.92]). The interventions did not result in significant differences on other OA MRI features.

**Conclusions**

In subjects at high risk for future knee OA development, a diet and exercise program, glucosamine sulphate and their combination showed small and mainly non-significant effects on the progression of OA MRI features. Only progression of meniscal extrusion was significantly diminished by the diet and exercise program.



**56. ATHLETICS****Blood flow restriction in bike riders**

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**Augmented Anabolic Responses following 8-weeks Cycling with Blood Flow Restriction.**

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**INTRODUCTION:**

Low-intensity endurance training performed with blood flow restriction (ET-BFR) can improve muscle strength, cross-sectional area (CSA) and cardiorespiratory capacity. Whether muscle strength and CSA as well as cardiorespiratory capacity (i.e.:  $\dot{V}O_2\text{max}$ ) and underlying molecular processes regulating such respective muscle adaptations are comparable to resistance and endurance training is unknown.

**PURPOSE:**

To determine the respective chronic (i.e.: 8 weeks) functional, morphological and molecular responses of ET-BFR training compared to conventional, unrestricted resistance training (RT) and endurance training (ET).

**METHODS:**

Thirty healthy young men were randomly assigned to one of three experimental groups: ET-BFR (n=10, 4 days/wk, 30 min cycling at 40% of  $\dot{V}O_2\text{max}$ ), RT (n=10, 4 days/wk, 4 sets of 10 reps leg-press at 70% of 1-RM with 60 s rest) or ET (n=10, 4 days/wk, 30 min cycling at 70% of  $\dot{V}O_2\text{max}$ ) for 8 weeks. Measures of quadriceps CSA, leg press 1-RM, and  $\dot{V}O_2\text{max}$  as well as muscle biopsies were obtained prior to and post intervention.

**RESULTS:**

Both RT and ET-BFR increased muscle strength and hypertrophy responses. ET-BFR also increased  $\dot{V}O_2\text{max}$ , total COXIV abundance and VEGF mRNA abundance despite the lower work load compared to ET.

**CONCLUSION:**

Eight weeks of ET-BFR can increase muscle strength and induce similar muscle hypertrophy responses to RT while  $\dot{V}O_2\text{max}$  responses also increased post-intervention even with a significantly lower work load compared to ET. Our findings provide new insight to some of the molecular mechanisms mediating adaptation responses with ET-BFR and the potential for this training protocol to improve muscle and cardiorespiratory capacity.

**59. PAIN****Pain medication in OA****Journal Summaries in Family Medicine****Efficacy of commonly prescribed analgesics in the management of osteoarthritis: A systematic review and meta-analysis**

Rheumatology International — Stewart M, et al. | August 20, 2018

Authors sought to obtain current, literature-based estimates of the impact of common pharmacologic treatments on pain reduction in osteoarthritis (OA). In the treatment of OA pain, the effects of 5 major drug categories were reviewed with data extracted from 29 studies published from 2006 to 2016. The RC value of acetaminophen was seen to be close to that of oral NSAIDs. In controlling pain, findings suggested the similarity of the impacts of oral NSAIDs, COX-2 inhibitors, and opioids in controlling pain to what has been demonstrated in the previous literature. Compared to oral NSAIDs, they noted a greater efficacy of topical NSAIDs.

**Methods**

- Experts conducted a MEDLINE search (2006–2016) for randomized controlled trials studying acetaminophen, oral NSAIDs, topical NSAIDs, COX-2 inhibitors, and opioids in the treatment of OA pain.
- They estimated the drug effect on pain using relative change in pain, and expressed as percentage change.
- For each drug category, an overall effect was obtained as a weighted average of study-specific effects, with weights based on each study's sample size.

**Results**

- As per data, 29 studies were included.
- In a total of 43 treatment arms (acetaminophen n=6, oral NSAIDs n=9, topical NSAIDs n=8, COX-2 inhibitors n=9, and opioids n=11), the effect on pain was estimated.
- Results demonstrated the relative (%) changes in pain to be as follows: acetaminophen=32.5, oral NSAIDs=34.3, topical NSAIDs=40.9, COX-2 inhibitors=36.9, and opioids=35.4.