

5. SURGERY

Cervical disc prosthesis

Spine J. 2018 May 8. pii: S1529-9430(18)30194-3. doi: 10.1016/j.spinee.2018.04.021.

Radiological follow-up after implanting cervical disc prosthesis in anterior discectomy: a systematic review.

Yang X¹, Janssen T², Arts MP², Peul WC³, Vleggeert-Lankamp CLA².

Objective The objective of this study was to review current literature on comparison of radiological outcome of cervical arthroplasty with fusion after anterior discectomy for radiculopathy.

Methods A literature search was performed in PubMed, Embase, Web of Science, COCHRANE, CENTRAL and CINAHL using a sensitive search string combination. Studies were selected by predefined selection criteria (a.o. patients exclusively suffering from cervical radiculopathy) and risk of bias was assessed using a validated Cochrane Checklist adjusted for this purpose. Additionally, an overview of results of articles published in 21 meta-analyses was added, considering a group of myelopathy with or without radiculopathy patients.

Results Seven articles were included that compared intervertebral devices in radiculopathy patients (excluding myelopathy patients). Another 31 articles were studied as a mixed group including patients with myelopathy and radiculopathy. Apart from three studies with low risk of bias, all other articles showed intermediate or high risk of bias. Heterotopic ossification was reported to be present in circa 10% of patients, seemingly predominant in radiculopathy patients, with a very low level of evidence. Radiological signs of adjacent segment disease were present at baseline in 50% of patients, and there is low level of evidence that this increased more (10-20%) in the fusion group at long term follow up. This was however only studied in the mixed study population, which is degenerative by diagnosis.

Conclusions Although the cervical disc prosthesis was introduced to decrease adjacent level disease, convincing radiological evidence for this benefit is lacking. Heterotopic ossification as a complicating factor in the preservation of motion of the device is insufficiently studied. Regarding purely radiological outcomes, currently, no firm conclusion can be drawn for implanting cervical prosthesis versus performing fusion.

Vertebroplasty

Vertebroplasty versus sham procedure for painful acute osteoporotic vertebral compression fractures (VERTOS IV): randomised sham controlled clinical trial

BMJ 2018; 361 doi: <https://doi.org/10.1136/bmj.k1551> (Published 09 May 2018) Cite this as: BMJ 2018;361:k1551

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Objective To assess whether percutaneous vertebroplasty results in more pain relief than a sham procedure in patients with acute osteoporotic compression fractures of the vertebral body.
Design Randomised, double blind, sham controlled clinical trial.

Setting Four community hospitals in the Netherlands, 2011-15.

Participants 180 participants requiring treatment for acute osteoporotic vertebral compression fractures were randomised to either vertebroplasty (n=91) or a sham procedure (n=89).

Interventions Participants received local subcutaneous lidocaine (lignocaine) and bupivacaine at each pedicle. The vertebroplasty group also received cementation, which was simulated in the sham procedure group.

Main outcome measures Main outcome measure was mean reduction in visual analogue scale (VAS) scores at one day, one week, and one, three, six, and 12 months. Clinically significant pain relief was defined as a decrease of 1.5 points in VAS scores from baseline. Secondary outcome measures were the differences between groups for changes in the quality of life for osteoporosis and Roland-Morris disability questionnaire scores during 12 months' follow-up.

Results The mean reduction in VAS score was statistically significant in the vertebroplasty and sham procedure groups at all follow-up points after the procedure compared with baseline. The mean difference in VAS scores between groups was 0.20 (95% confidence interval -0.53 to 0.94) at baseline, -0.43 (-1.17 to 0.31) at one day, -0.11 (-0.85 to 0.63) at one week, 0.41 (-0.33 to 1.15) at one month, 0.21 (-0.54 to 0.96) at three months, 0.39 (-0.37 to 1.15) at six months, and 0.45 (-0.37 to 1.24) at 12 months. These changes in VAS scores did not, however, differ statistically significantly between the groups during 12 months' follow-up. The results for secondary outcomes were not statistically significant. Use of analgesics (non-opioids, weak opioids, strong opioids) decreased statistically significantly in both groups at all time points, with no statistically significant differences between groups. Two adverse events occurred in the vertebroplasty group: one respiratory insufficiency and one vasovagal reaction.

Conclusions Percutaneous vertebroplasty did not result in statistically significantly greater pain relief than a sham procedure during 12 months' follow-up among patients with acute osteoporotic vertebral compression fractures.

7. PELVIC ORGANS/WOMAN'S HEALTH

Caffeine and fetus

Acta Paediatr. 2018 May 3. doi: 10.1111/apa.14382.

Cardiovascular impact of intravenous caffeine in preterm infants.

Huvanandana J^{1,2}, Thamrin C², McEwan AL^{1,3}, Hinder M^{1,4}, Tracy MB^{4,5}.

AIM:

To evaluate the acute effect of intravenous caffeine on heart rate and blood pressure variability in preterm infants.

METHODS:

We extracted and compared linear and nonlinear features of heart rate and blood pressure variability at two time points: prior to and in the two hours following a loading dose of 10 mg/kg caffeine base.

RESULTS:

We studied 31 preterm infants with arterial blood pressure data and 25 with electrocardiogram data, and compared extracted features prior to and following caffeine administration. We observed a reduction in both scaling exponents (α_1 , α_2) of mean arterial pressure from detrended fluctuation analysis and an increase in the ratio of short- (SD1) and long-term (SD2) variability from Poincare analysis (SD1/SD2). Heart rate variability analyses showed a reduction in α_1 (mean (SD) of 0.92 (0.21) to 0.86 (0.21), $p < 0.01$), consistent with increased vagal tone. Following caffeine, beat-to-beat pulse pressure variability (SD) also increased (2.1 (0.64) to 2.5 (0.65) mmHg, $p < 0.01$).

CONCLUSION:

This study highlights potential elevation in autonomic nervous system responsiveness following caffeine administration reflected in both heart rate and blood pressure systems. The observed increase in pulse pressure variability may have implications for caffeine administration to infants with potentially impaired cerebral autoregulation.

Diet and menopause

J Epidemiol Community Health. 2018 Apr 30. pii: jech-2017-209887. doi: 10.1136/jech-2017-209887.

Dietary intake and age at natural menopause: results from the UK Women's Cohort Study.

Dunneram Y¹, Greenwood DC², Burley VJ¹, Cade JE¹.

BACKGROUND:

Age at natural menopause is a matter of concern for women of reproductive age as both an early or late menopause may have implications for health outcomes.

METHODS:

Study participants were women aged 40-65 years who had experienced a natural menopause from the UK Women's Cohort Study between baseline and first follow-up. Natural menopause was defined as the permanent cessation of menstrual periods for at least 12 consecutive months. A food frequency questionnaire was used to estimate diet at baseline. Reproductive history of participants was also recorded. Regression modelling, adjusting for confounders, was used to assess associations between diet and age at natural menopause.

RESULTS:

During the 4-year follow-up period, 914 women experienced a natural menopause. A high intake of oily fish and fresh legumes were associated with delayed onset of natural menopause by 3.3 years per portion/day (99% CI 0.8 to 5.8) and 0.9 years per portion/day (99% CI 0.0 to 1.8), respectively. Refined pasta and rice was associated with earlier menopause (per portion/day: -1.5 years, 99% CI -2.8 to -0.2). A higher intake of vitamin B6 (per mg/day: 0.6 years, 99% CI 0.1 to 1.2) and zinc (per mg/day: 0.3 years, 99% CI -0.0 to 0.6) was also associated with later age at menopause. Stratification by age at baseline led to attenuated results.

CONCLUSION:

Our results suggest that some food groups (oily fish, fresh legumes, refined pasta and rice) and specific nutrients are individually predictive of age at natural menopause.

Smoking detection

Gynecol Obstet Invest. 2018 May 8:1-10. doi: 10.1159/000485617.

Smoking Exposure in Early Pregnancy and Adverse Pregnancy Outcomes: Usefulness of Urinary Tobacco-Specific Nitrosamine Metabolite 4-(Methylnitrosamino)-1-(3-Pyridyl)-1-Butanol Levels.

Lee SW^{1,2}, Han YJ¹, Cho DH³, Kwak HS³, Ko K⁴, Park MH², Han JY¹.

OBJECTIVES:

The aim was to investigate the effect of -maternal smoking exposure assessed by urinary tobacco-specific nitrosamine metabolite 4-(methylnitrosamino)-1-(3-pyridyl)-a1-butanol (NNAL) with adverse pregnancy outcomes.

METHODS:

A total of 251 pregnant women were recruited. Urinary cotinine and NNAL were measured. Participants' sociodemographics were obtained by questionnaire and pregnancy outcomes were collected by charts review after delivery.

RESULTS:

The prevalence of smoking was 8.4% (21 of 249), 1.2% (3 of 241), and 3.7% (9 of 241) in pregnant women according to questionnaire, cotinine, and NNAL, respectively. As compared with questionnaire positivity and cotinine levels, women with positive NNAL were independent determinants for spontaneous abortion (adjusted OR 12.357, 95% CI 2.053-74.368), preterm birth (adjusted OR 22.239, 95% CI 3.737-132.357), and small for gestational age (adjusted OR 6.915, 95% CI 1.385-34.524).

CONCLUSIONS:

Urinary NNAL might be a useful biomarker in detection of maternal smoking status in association with adverse pregnancy outcomes. Use of this marker in preconception and pregnancy counselling before planning pregnancy may allow prevention of several adverse pregnancy outcomes.

Acupuncture does not help pregnancy**Effect of acupuncture vs sham acupuncture on live births among women undergoing in vitro fertilization: A randomized clinical trial**

JAMA — Smith CA, et al. | May 16, 2018

A single-blind, parallel-group randomized clinical trial was conducted to ascertain the effectiveness of acupuncture compared with a sham acupuncture control performed during in vitro fertilization (IVF) on live births. Administration of acupuncture vs sham acupuncture at the time of ovarian stimulation and embryo transfer resulted in no significant difference in live birth rates among women undergoing IVF. Among women undergoing IVF, these findings did not support the use of acupuncture to improve the rate of live births.

Methods

This trial involving eight hundred forty-eight women undergoing a fresh IVF cycle was conducted at 16 IVF centers in Australia and New Zealand between June 29, 2011, and October 23, 2015, with 10 months of pregnancy follow-up until August 2016.

Interventions included assignment of women to either acupuncture (n = 424) or a sham acupuncture control (n = 424).

Participants received first treatment between days 6 to 8 of follicle stimulation.

Before and after embryo transfer, 2 treatments were administered.

A noninvasive needle placed away from the true acupuncture points was used by the sham control

Live birth, defined as the delivery of 1 or more living infants at greater than 20 weeks' gestation or birth weight of at least 400 g was the primary outcome.

Results

Findings revealed that among 848 randomized women, 24 withdrew consent, 824 were incorporated into the examination (mean [SD] age, 35.4 [4.3] years); 371 [45.0%] had undergone more than 2 previous IVF cycles), 607 proceeded to an embryo transfer, and 809 (98.2%) had data available on live birth outcomes.

Researchers observed that live births occurred among 74 of 405 women (18.3%) receiving acupuncture compared with 72 of 404 women (17.8%) receiving sham control (risk difference, 0.5% [95% CI, -4.9% to 5.8%]; relative risk, 1.02 [95% CI, 0.76 to 1.38]).

8. VISCERA

Microvilli changers in CD

Gastroenterology. 2018 May 18. pii: S0016-5085(18)34561-X. doi: 10.1053/j.gastro.2018.05.028.

Abnormal Small Intestinal Epithelial Microvilli in Patients With Crohn's Disease.

VanDussen KL¹, Stojmirović A², Li K², Liu TC¹, Kimes PK², Muegge BD¹, Simpson KF¹, Ciorba MA³, Perrigoue JG², Friedman JR², Towne JE², Head RD⁴, Stappenbeck TS⁵.

BACKGROUND & AIMS:

Crohn's disease (CD) presents as chronic and often progressive intestinal inflammation, but the contributing pathogenic mechanisms are unclear. We aimed to identify alterations in intestinal cells that could contribute to the chronic and progressive course of CD.

METHODS:

We took an unbiased, system-wide approach, performing sequence analysis of RNA extracted from formalin-fixed, paraffin-embedded ileal tissue sections from patients with CD (n=36) and without CD (controls, n=32). We selected relatively uninflamed samples, based on histology, before gene expression profiling; validation studies were performed using adjacent serial tissue sections. A separate set of samples (3 controls and 4 CD) was analyzed by transmission electron microscopy. We developed methods to visualize an overlapping modular network of genes dysregulated in the CD samples. We validated our findings using biopsy samples (110 CD samples for gene expression analysis and 54 for histologic analysis) from the UNITI-2 phase 3 trial of ustekinumab for patients with CD and healthy individuals (26 samples used in gene expression analysis).

RESULTS:

We identified gene clusters that were altered in nearly all CD samples. One cluster encoded genes associated with the enterocyte brush border, leading us to investigate microvilli. In ileal tissues from patients with CD, the microvilli were of reduced length and had ultrastructural defects, compared to tissues from controls. Microvilli length correlated with expression of genes that regulate microvilli structure and function. Network analysis linked the microvilli cluster to several other down-regulated clusters associated with altered intra-cellular trafficking and cellular metabolism. Enrichment of a core microvilli gene set was also lower in the UNITI-2 trial CD samples compared with controls; expression of microvilli genes correlated with microvilli length and endoscopy score, and associated with response to treatment.

CONCLUSIONS:

In a transcriptome analysis of formalin-fixed, paraffin-embedded ileal tissues from patients with CD and controls, we associated transcriptional alterations with histologic alterations, such as differences in microvilli length. Decreased microvilli length and reduced expression of the microvilli gene set might contribute to epithelial malfunction and the chronic, progressive disease course in patients with CD.

Fiber intake

Gastroenterology. 2018 May 11. pii: S0016-5085(18)34541-4. doi: 10.1053/j.gastro.2018.05.021.

Increased Long-term Dietary Fiber Intake is Associated With Decreased Risk of Fecal Incontinence in Older Women.

Staller K¹, Song M², Grodstein F³, Whitehead WE⁴, Matthews CA⁵, Kuo B⁶, Chan AT⁷.

BACKGROUND & AIMS:

Fiber supplements are frequently used as treatment for fecal incontinence (FI), but little is known about role of dietary fiber in the prevention of FI.

METHODS:

We performed a prospective study to examine the association between long-term dietary fiber intake and risk of FI among 58,330 older women (mean age 73) in the Nurses' Health Study who were free of FI in 2008. Energy-adjusted, long-term dietary fiber intake was determined using food frequency questionnaires starting in 1984 and updated through 2006. We defined incident FI as ≥ 1 liquid or solid FI episode/month during the past year during 4 years of follow up using self-administered, biennial questionnaires. We used Cox proportional hazards models to calculate multivariable-adjusted hazard ratios (HRs) and 95% CIs for FI according to fiber intake, adjusting for potential confounding factors.

RESULTS:

During 193,655 person-years of follow up, we documented 7056 incident cases of FI. Compared with women in the lowest quintile of fiber intake (13.5 g/day), women in the highest quintile (25 g/day) had an 18% reduction in risk of FI (multivariable HR, 0.82; 95% CI, 0.76-0.89). This reduction appeared to be greatest for risk of liquid stool FI, was 31% lower among women with the highest intake of fiber compared to women with the lowest intake (multivariable HR, 0.69; 95% CI, 0.62-0.75). Risk of FI was not significantly associated with fiber source.

CONCLUSIONS:

In an analysis of data from almost 60,000 older women in the Nurses' Health Study, we found higher long-term intake of dietary fiber to be associated with decreased risk of FI. Further studies are needed to determine the mechanisms that mediate this association.

Carbohydrate intake

J Hum Nutr Diet. 2018 May 9. doi: 10.1111/jhn.12559.

Association between dietary carbohydrate quality and the prevalence of obesity and hypertension.

Kim DY¹, Kim SH², Lim H^{1,2}.

BACKGROUND:

Dietary carbohydrate quality may play an important role in disease development. We evaluated the association between carbohydrate quality index (CQI) and the prevalence of obesity and metabolic disorders among adults in South Korea.

METHODS:

We analysed 12 027 adults aged 19-64 years from the fifth Korea National Health and Nutrition Examination Survey (KNHANES). CQI was based on four criteria: crude fibre intake, dietary glycaemic index (DGI), whole grains/total grains ratio and solid carbohydrates/total carbohydrates ratio.

RESULTS:

Participants with a lower CQI were younger, had a lower income and were more likely to be smokers and to drink alcohol. The highest quintile CQI group showed the lowest DGI and the lowest consumption of liquid carbohydrates and refined grains, as well as the highest consumption of solid carbohydrates, crude fibre and whole grains ($P < 0.05$). A higher CQI was negatively associated with the prevalence of obesity (odds ratio = 0.83; 95% confidence interval = 0.69-0.99) and hypertension (odds ratio = 0.78; 95% confidence interval = 0.61-0.99) but was not associated with other metabolic disorders.

CONCLUSIONS:

These results suggest that the quality of carbohydrates consumed is associated with the risk of obesity and hypertension. However, the cross-sectional design does not preclude reverse causality.

Proton pump inhibitors and kidney disease

J Gastroenterol Hepatol. 2018 Apr 12. doi: 10.1111/jgh.14157.

Acid-suppressive drugs and risk of kidney disease: A systematic review and meta-analysis.

Qiu T^{1,2}, Zhou J³, Zhang C¹.

BACKGROUND AND AIM:

More concerns had been raised about the risk of kidney disease (KD) associated with acid-suppressive drugs. But whether they could directly increase such risk remained unclear. Meta-analysis was conducted to comprehensively investigate this relationship.

METHODS:

PubMed, EMBASE, Cochrane Central Register of Controlled Trials, and three Chinese databases were searched until April 2017 for observational studies investigating the associations between acid-suppressive drugs and KD. Pooled log (odds ratios [ORs]) or log (hazard ratios [HRs]) with standard errors for KD risk were calculated using the generic inverse variance method and random-effect model.

RESULTS:

Ten studies involving 128 020 KD patients were included. Proton pump inhibitor (PPI) therapy was associated with higher risks of acute interstitial nephritis (OR, 2.78; 95% confidence interval [CI], 1.25-6.17), acute kidney injury (AKI) (HR, 1.85; 95% CI, 1.33-2.59), chronic kidney disease (CKD) (HR, 1.47; 95% CI, 1.03-2.09), and end-stage renal disease (ESRD) (HR, 1.61; 95% CI, 1.26-2.04) than non-PPI therapy. Additionally, PPI significantly increased the risks of AKI (HR, 1.32; 95% CI, 1.16-1.51), CKD (HR, 1.28; 95% CI, 1.24-1.33), and ESRD (HR, 1.96; 95% CI, 1.21-3.17) compared with histamine 2 receptor antagonist (H₂ RA). Relationship between H₂RA therapy and AKI (OR, 0.98; 95% CI, 0.90-1.07) or CKD (OR, 1.00; 95% CI, 0.89-1.11) was not found.

CONCLUSIONS:

Proton pump inhibitor therapy significantly increased the risks of acute interstitial nephritis, AKI, CKD, and ESRD. Similar risks were not identified for H₂ RA therapy. More clinical trials are needed to confirm our findings.

IBS and CD gut permeability**Similar subclinical enthesitis in celiac and inflammatory bowel diseases by ultrasound suggests a gut enthesitis axis independent of spondyloarthropathy spectrum**

Sibel Bakirci Ureyen Cengiz Karacaer Bilal Toka Zeynep Erturk Ahmet Tarik
Eminler Muhammed Kaya Koray Tascilar Ali Tamer Ihsan Uslan Esra Kurum ... Show more
Rheumatology, key102, <https://doi.org/10.1093/rheumatology/key102>

Objective

Higher subclinical enthesitis on US has been reported in IBD and celiac disease, separately. The objective of this study was to compare IBD and celiac disease for enthesitis on US. Higher enthesitis scores in IBD compared with celiac disease would support a shared pathogenic mechanism between IBD and spondyloarthritis, whereas similar scores may suggest a general impact of gut inflammation on the enthesitis.

Methods

Patients with IBD, celiac disease and healthy controls (HCs) were recruited and 12 entheses were scanned by US, blind to the diagnosis and clinical assessment. Elementary lesions for enthesitis were scored on a scale between 0 and 3, for inflammation, damage and total US scores.

Results

A total of 1260 entheses were scanned in 44 patients with celiac disease, 43 patients with IBD and 18 HCs. The three groups were matched for age and BMI. Patients with celiac disease and IBD had higher inflammation scores than HCs [10.4 (6.5), 9.6 (5.4) and 5.6 (5.2), respectively, $P = 0.007$) whereas damage scores were similar. Both age and BMI had significant effects on the enthesal scores, mostly for inflammation scores but when controlling for these the US enthesopathy scores were still higher in celiac disease and IBD.

Conclusion

The magnitude of subclinical enthesopathy scores is similar between celiac disease and IBD in comparison with HCs. These findings suggest that the common factor between both diseases and enthesopathy is abnormal gut permeability, which may be modified by the genetic architecture of IBD leading to clinical arthropathy.

Micro changes in CD

Gastroenterology

Abnormal Small Intestinal Epithelial Microvilli in Patients With Crohn's Disease

Kelli L. VanDussen¹, Aleksandar Stojmirović², Katherine Li², Ta-Chiang Liu¹, Patrick K. Kimes^{2,†}, Brian D. Muegge¹, Katherine F. Simpson¹, Matthew A. Ciorba³, Jacqueline G. Perrigoué², Joshua R. Friedman², <https://doi.org/10.1053/j.gastro.2018.05.028>

Background & Aims

Crohn's disease (CD) presents as chronic and often progressive intestinal inflammation, but the contributing pathogenic mechanisms are unclear. We aimed to identify alterations in intestinal cells that could contribute to the chronic and progressive course of CD.

Methods

We took an unbiased, system-wide approach, performing sequence analysis of RNA extracted from formalin-fixed, paraffin-embedded ileal tissue sections from patients with CD (n=36) and without CD (controls, n=32). We selected relatively uninflamed samples, based on histology, before gene expression profiling; validation studies were performed using adjacent serial tissue sections. A separate set of samples (3 controls and 4 CD) was analyzed by transmission electron microscopy. We developed methods to visualize an overlapping modular network of genes dysregulated in the CD samples. We validated our findings using biopsy samples (110 CD samples for gene expression analysis and 54 for histologic analysis) from the UNITI-2 phase 3 trial of ustekinumab for patients with CD and healthy individuals (26 samples used in gene expression analysis).

Results

We identified gene clusters that were altered in nearly all CD samples. One cluster encoded genes associated with the enterocyte brush border, leading us to investigate microvilli. In ileal tissues from patients with CD, the microvilli were of reduced length and had ultrastructural defects, compared to tissues from controls. Microvilli length correlated with expression of genes that regulate microvilli structure and function. Network analysis linked the microvilli cluster to several other down-regulated clusters associated with altered intra-cellular trafficking and cellular metabolism. Enrichment of a core microvilli gene set was also lower in the UNITI-2 trial CD samples compared with controls; expression of microvilli genes correlated with microvilli length and endoscopy score, and associated with response to treatment.

Conclusions

In a transcriptome analysis of formalin-fixed, paraffin-embedded ileal tissues from patients with CD and controls, we associated transcriptional alterations with histologic alterations, such as differences in microvilli length. Decreased microvilli length and reduced expression of the microvilli gene set might contribute to epithelial malfunction and the chronic, progressive disease course in patients with CD.

Vit. D and blood pressure

Review Article**Effect of vitamin D supplementation on blood pressure parameters in patients with vitamin D deficiency: a systematic review and meta-analysis**

<https://doi.org/10.1016/j.jash.2018.04.009>

Highlight

- Vitamin D deficiency is severe in the worldwide and become a major public health problem in all age groups.
- This meta-analysis included seven RCTs examined whether vitamin D supplementation can affect blood pressure parameters in 560 vitamin D deficient participants.
- There is a small but significant fall in peripheral blood pressure through vitamin D supplementation in vitamin D deficient subjects.
- Central blood pressure parameters can not be significantly affected by vitamin D supplementation.

Objective

Evidence suggests that supplementation of vitamin D can not decrease blood pressure in normal populations. However, in randomized controlled trials (RCTs) with vitamin D deficient participants (defined as baseline serum 25(OH) D levels < 30ng/ml or 50nmol/L), this effect is inconsistent and under debate. Thus, We performed this systematic review and meta-analysis to evaluate whether vitamin D supplementation could affect blood pressure parameters in vitamin D deficient subjects.

Methods

The PubMed, Web of Science, Science Direct, and Cochrane library databases were searched. Extracted data were pooled as weighted mean differences (WMDs) with 95% confidence intervals (CIs) to evaluate the effects. Subgroup analysis was further conducted according to the characteristics of included studies.

Results

Seven RCTs contained 560 participants were included in our meta-analysis. The pooled WMD of peripheral diastolic blood pressure was -1.65 mm Hg (95%CI: -3.05 to -0.25, $I^2=30.3\%$). No significant effect of vitamin D supplementation was found on other parameters. Subgroup analysis showed a significant decrease in peripheral SBP and DBP in Asia, 8 weeks of intervention and more than 5000IU of daily vitamin D supplementation subgroups.

Conclusion

For vitamin D deficient patients, there is a small but significant fall in peripheral blood pressure but no significant in other blood pressure parameters with vitamin D supplementation. Further RCTs with large numbers of participants is still warranted to confirm these effects.

Cardiac guidelines

J Clin Hypertens (Greenwich). 2018 May 18. doi: 10.1111/jch.13314.

Differences in primary cardiovascular disease prevention between the 2013 and 2016 cholesterol guidelines and impact of the 2017 hypertension guideline in the United States.

Egan BM^{1,2}, Li J^{1,3}, Davis RA^{1,2}, Fiscella KA⁴, Tobin JN^{5,6,7}, Jones DW^{8,9}, Sinopoli A^{1,2}.

The US Preventive Services Task Force cholesterol guideline recommended statins for fewer adults than the 2013 American College of Cardiology/American Heart Association (ACC/AHA) guideline by setting a higher 10-year atherosclerotic cardiovascular disease threshold ($\geq 10.0\%$ vs $\geq 7.5\%$) and requiring concomitant diabetes mellitus, hypertension, dyslipidemia, or cigarette smoking.

The 2017 ACC/AHA hypertension guideline lowered the hypertension threshold, increasing 2016 guideline statin-eligible adults. Cross-sectional data on US adults aged 40 to 75 years enabled estimated numbers for the 2013 guideline and 2016 guideline with hypertension thresholds of $\geq 140/\geq 90$ mm Hg and $\geq 130/80$ mm Hg, respectively, on: (1) untreated, statin-eligible adults for primary atherosclerotic cardiovascular disease prevention (25.40, 14.72, 15.35 million); (2) atherosclerotic cardiovascular disease events prevented annually (124 000, 70 852, 73 199); (3) number needed to treat (21, 21, 21); and (4) number needed to harm (38, 143, 143) per 1000 patient-years for incident diabetes mellitus (42 800, 6700, 7100 cases per year).

Despite the lower hypertension threshold, the 2013 cholesterol guideline qualifies approximately 10 million more adults for statins and prevents approximately 50 600 more primary atherosclerotic cardiovascular disease events but induces approximately 35 700 more diabetes mellitus cases annually than the 2016 guideline.

Bacterial overgrowth and IBS

Testing and Treating Small Intestinal Bacterial Overgrowth Reduces Symptoms in Patients with Inflammatory Bowel Disease.

Dig Dis Sci. 2018 May 14;:

Authors: Cohen-Mekelburg S, Tafesh Z, Coburn E, Weg R, Malik N, Webb C, Hammad H, Scherl E, Bosworth BP

Abstract

BACKGROUND: Common mechanisms against small intestinal bacterial overgrowth (SIBO), including an intact ileocecal valve, gastric acid secretion, intestinal motility, and an intact immune system, are compromised in inflammatory bowel disease (IBD), and therefore, a relatively high incidence of SIBO has been reported in this population.

AIMS: We aimed to determine whether an improvement in IBD clinical activity scores is seen after testing and treating SIBO.

METHODS: A retrospective cohort study of 147 patients with inflammatory bowel disease who were referred for SIBO breath testing from 1/2012 to 5/2016 was performed. Characteristics of SIBO positive and treated patients were compared to SIBO negative patients, including the changes in Partial Mayo Score or Harvey Bradshaw Index (HBI), using Student's t test for continuous variables and Chi-squared or Fisher's exact test for categorical variables.

RESULTS: 61.9% were SIBO positive and treated, and 38.1% were SIBO negative. In Crohn's disease, the median HBI decreased from 5 to 3 and 5 to 4, in the SIBO positive and negative groups, respectively ($p = 0.005$). In ulcerative colitis, the Partial Mayo Score decreased from 2 to 1.5 and 2 to 1, respectively ($p = 0.607$).

CONCLUSIONS: This study examines the clinical effect of testing and treating for SIBO in an IBD population. We see a significant reduction in HBI after testing for and treating SIBO. Future prospective studies are necessary to further investigate the role of SIBO in the evaluation and management of IBD.

13 B. TMJ/ORAL

OSA in acromegaly

Characteristics of the upper respiratory tract in patients with acromegaly and correlations with obstructive sleep apnoea/hypopnea syndrome

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Highlights

- Fifty-two percent of patients with acromegaly were diagnosed with OSAHS.
- Changes in the structure of the upper airway were sensitively detected by CT.
- The apnoea hypopnea index correlates with changes in upper airway structure.
- Soft palate and lateral pharyngeal tissue were thickened in patients with OSAHS.
- Cross-sectional areas of the upper airway were decreased in patients with OSAHS.

Abstract

Objective

To explore the radiological characteristics of the upper respiratory tract and their correlations with obstructive sleep apnoea/hypopnea syndrome (OSAHS) in patients with acromegaly.

Methods

Computed tomography (CT) and magnetic resonance imaging (MRI) were performed in untreated patients with acromegaly placed in straight (SHP) and extended head positions (EHP). Overnight polysomnography was performed to evaluate OSAHS, and the apnoea/hypopnea index (AHI) was measured.

Results

According to the CT findings, a thicker soft palate (1.24 ± 0.22 vs. 1.03 ± 0.22 cm, $p = 0.024$), larger soft palate cross-sectional area (5.15 ± 1.21 vs. 4.06 ± 1.09 cm², $p = 0.027$) and thicker lateral pharyngeal wall (1.01 ± 0.25 vs. 0.79 ± 0.14 cm, $p = 0.015$) were observed in patients with acromegaly who presented with OSAHS compared with patients without OSAHS. Additionally, the maximal transverse diameter (1.87 ± 0.40 vs. 2.31 ± 0.44 cm, $p = 0.015$) and cross-sectional area (1.98 ± 0.46 vs. 2.74 ± 1.01 cm², $p = 0.032$) of the airway were decreased in the soft palate plane in patients with OSAHS. The AHI was positively correlated with the thickness of the soft palate and lateral pharyngeal wall but negatively correlated with the maximal transverse diameter and cross-sectional area of the airway in the soft palate plane.

Conclusions

Airway stenosis and pharyngeal tissue hypertrophy are typical characteristics of changes in the structure of the upper respiratory tract in patients with acromegaly who present with OSAHS. AHI is a predictor of the severity of the respiratory tract changes.

Sleep and tooth loss

Epidemiology Research

Evaluation of the association between sleep duration and tooth loss among Korean adults: data from the Korean National Health and Nutrition Examination Survey (KNHANES 2012–2014)

Kyungdo Han¹, Jun-Beom Park²

Objectives This study assessed the association between sleep duration and tooth loss using nationally representative data. In this study, a cross-sectional analysis was performed using multivariable logistic regression analysis models.

Setting The present study analysed data from the Korean National Health and Nutrition Examination Survey between 2012 and 2014.

Participants A total of 14 675 respondents over 19 years old without missing values were included in this study.

Exposure and primary outcome measures Sleep duration and tooth loss.

Results Participants with a sleep duration of 6–8 hours showed the lowest prevalence of diabetes mellitus, hypertension, metabolic syndrome, periodontitis and meeting the waist circumference criteria for metabolic syndrome. Adjusted OR and their 95% CI of male individuals with fewer than 25 natural teeth were 1.426 (1.113 to 1.827), 1.290 (1.074 to 1.548), 0.988 (0.853 to 1.145), 1 (reference), 1.058 (0.907 to 1.235) and 1.620 (1.287 to 2.038) for sleep duration of 4 hours or less, 5 hours, 6 hours, 7 hours, 8 hours and 9 hours or more, respectively ($p < 0.05$), after adjustments for age, sex, smoking, drinking, walking, frequency of tooth brushing per day, body mass index and periodontitis.

Conclusions Our findings showed the U-shaped association between sleep duration and tooth loss was suggested by multiple logistic regression analyses after adjusting for confounding factors. Moreover, subgroup analyses showed that short and long sleep duration were associated with greater tooth loss in participants without diabetes mellitus, those without hypertension and those without metabolic syndrome.

: <http://creativecommons.org/licenses/by-nc/4.0/> <http://dx.doi.org/10.1136/bmjopen-2017-018383>

OSA and white matter changes

J Neurol. 2018 May 15. doi: 10.1007/s00415-018-8895-7.

Obstructive sleep apnea and cerebral white matter change: a systematic review and meta-analysis.

Ho BL^{1,2,3}, Tseng PT⁴, Lai CL^{1,3}, Wu MN¹, Tsai MJ⁵, Hsieh CF⁶, Chen TY⁷, Hsu CY^{8,9}.

Obstructive sleep apnea (OSA) can cause sleep fragmentation and intermittent hypoxemia, which are linked to oxidative stress. White matter changes (WMCs) representing cerebrovascular burden and are at risk factor for oxidative ischemic injury.

The current study explores the mutual relationships between OSA and WMCs. We performed a systematic review of electronic databases for clinical studies investigating OSA and WMCs. Random-effects models were used for pooled estimates calculation. A total of 22 studies were included in the meta-analysis.

The results revealed a significantly higher prevalence rate of WMCs [odds ratio (OR) 2.06, 95% confidence interval (CI) 1.52-2.80, $p < 0.001$] and significantly higher severity of WMCs (Hedges' $g = 0.23$, 95% CI 0.06-0.40, $p = 0.009$) in the patients with OSA than in controls.

Furthermore, the results revealed a significantly higher apnea-hypopnea index (Hedges' $g = 0.54$, 95% CI 0.31-0.78, $p < 0.001$) and significantly higher prevalence rate of moderate-to-severe OSA (OR 2.86, 95% CI 1.44-5.66, $p = 0.003$) in the patients with WMCs than in controls, however there was no significant difference in the prevalence rate of mild OSA between the patients with WMCs and controls (OR 0.71, 95% CI 0.20-2.54, $p = 0.603$). OSA was associated with a higher prevalence and more severe WMCs, and the patients with WMCs had an increased association with moderate-to-severe OSA. Future large-scale randomized controlled trials with a longitudinal design are essential to further evaluate treatment in patients with OSA.

Vit. D

J Clin Periodontol. 2018 Apr 2. doi: 10.1111/jcpe.12896.

Relationship between vitamin D receptor gene polymorphism and susceptibility to chronic kidney disease and periodontal disease in community-dwelling elderly.

Yoshihara A¹, Kaneko N², Iwasaki M³, Nohno K², Miyazaki H².

OBJECTIVES:

The aim of this study was to investigate the possible correlation between vitamin D receptor (VDR) gene polymorphism and susceptibility to chronic kidney disease (CKD) and periodontal disease.

MATERIAL AND METHODS:

This study analysed 345 participants, who were all 79 years of age. Kidney function levels were determined based on the estimated glomerular filtration rate (eGFR; non-reduced function: ≥ 60 and reduced function: $< 60 \text{ ml min}^{-1} 1.73 \text{ m}^{-2}$). VDR TaqI genotyping was also studied. We calculated the periodontal inflamed surface area (PISA). After classifying participants into quartile groups according to eGFR or PISA values, the subjects were then split into two groups (highest quartile versus the other three groups combined). Multiple logistic regression analysis was performed to evaluate the odds ratios between the eGFR and VDR TaqI genotype with the different PISA groups. The eGFR was set as the dependent variable while the VDR TaqI genotype, HbA1C, gender, smoking habits and body mass index were defined as independent variables.

RESULTS:

A significant association was observed between the VDR TaqI genotype and eGFR in the PISA high group (odds ratio = 3.97, $p = .027$).

CONCLUSION:

Study results suggest that VDR TaqI genotype might be associated with CKD during inflammatory conditions caused by periodontal disease.

13 C. AIRWAYS/SWALLOWING/SPEECH**Sleep in eating disorders****Sleep profile in Anorexia and bulimia nervosa female patients☆**

Tarek Asaad Abdou (Professor) Heba Ibrahim Esawy (Professor) Ghada Abdel Razeq
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DOI: <https://doi.org/10.1016/j.sleep.2018.03.032>

Highlights

- Sleep and eating disorders are highly correlated and considered a rich area for research.
- Insomnia, excessive daytime somnolence and parasomnias were found to be significantly high in the Structured Sleep Disorder Questionnaire of Anorexia and Bulimia patients in comparison to the control group.
- Polysomnography revealed multiple areas of sleep affection in both bulimia and anorexia nervosa patients in comparison to controls that could not be explained by depression alone.
- Further research is needed on larger samples.

Abstract**Objective**

Sleep wake cycle and eating patterns undergo major changes throughout life and are proved to be very correlated, eating disorders prevalence is increasing nowadays and sleep problems are very common among them. The current study is concerned with investigating the sleep pattern in anorexia and bulimia female patients using subjective and objective assessment tools.

Methods

A cross sectional study of sleep patterns using structured sleep disorder questionnaire and full night polysomnography in 23 female patients with bulimia and anorexia, patients aged 18 to 45 years not on any treatment for a month at least, compared to a sex and age matched control group(20 participant), all cases were collected from the Institute of Psychiatry, Ain Shams University over 18 months interval.

Results

significant affection of most domains of sleep measured by subjective and objective assessment tools in patients compared to the control group.

Discussion

sleep is affected in both bulimia and anorexia nervosa patients equally confirming that both sleep and eating disorders are highly correlated. Sleep can be a clinical marker in eating disorders.

SA and Atrial fibrillation

Clin Cardiol. 2018 May 10. doi: 10.1002/clc.22933.

The prevalence of obstructive sleep apnea in patients with atrial fibrillation.

Abumuamar AM¹, Dorian P², Newman D³, Shapiro CM⁴.

BACKGROUND:

Obstructive sleep apnea (OSA) is a systemic disorder associated with significant cardiovascular complications. OSA may play a role in the initiation and worsening of atrial fibrillation (AF). This study aimed to determine the prevalence and clinical predictors of OSA in patients with AF.

HYPOTHESIS:

OSA is underdiagnosed in a large number of patients with AF and may not be predicted by conventional clinical indices.

METHODS:

Consecutive nonselected patients with AF were recruited from different arrhythmia clinics in Toronto, Ontario, Canada. Patients with previous diagnosis and/or treatment of OSA were excluded. Patients underwent 2 consecutive nights of ambulatory sleep testing with full electroencephalogram recording. OSA was defined as an Apnea-Hypopnea Index (AHI) score ≥ 5 per hour of sleep.

RESULTS:

123 patients with AF were recruited, with 100 patients included in the final analysis. OSA was detected in 85% of these patients. 27% of patients with normal overall AHI had an increased AHI during rapid eye movement sleep. Only age and male sex were independent predictors of the presence of OSA in these patients.

CONCLUSIONS:

OSA is common and often undetected in patients with AF, especially in nonobese and/or female patients. Patients may have a normal overall AHI but an abnormal AHI during rapid eye movement sleep. The clinical relevance and therapeutic implications in this subgroup should be further investigated. The clinical features of OSA are not reliable predictors of OSA in patients with AF. A low threshold for detection of OSA, with sleep studies, in these patients may be merited.

Sleep deprivation**The impact of total sleep deprivation upon cognitive functioning in firefighters**

Authors Kujawski S, Słomko J, Tafil-Klawe M, Zawadka-Kunikowska M, Szrajda J, Newton JL, Zalewski P, Klawe JJ

Published 8 May 2018 Volume 2018:14 Pages 1171—1181

DOI <https://doi.org/10.2147/NDT.S156501>

Introduction: Firefighters as a profession are required to maintain high levels of attention for prolonged periods. However, total sleep deprivation (TSD) could influence negatively upon performance, particularly when the task is prolonged and repetitive.

Purpose: The aim of this study is to examine the influence of TSD on cognitive functioning in a group of firefighters.

Subjects and methods: Sixty volunteers who were active male fire brigade officers were examined with a computerized battery test that consisted of simple reaction time (SRT) (repeated three times), choice reaction time, visual attention test, and delayed matching to sample. Six series of measurements were undertaken over a period of TSD.

Results: Performance in the second attempt in SRT test was significantly worse in terms of increased number of errors and, consequently, decreased number of correct responses during TSD. In contrast, the choice reaction time number of correct responses as well as the visual attention test reaction time for all and correct responses significantly improved compared to initial time points.

Conclusion: The study has confirmed that subjects committed significantly more errors and, consequently, noted a smaller number of correct responses in the second attempt of SRT test. However, the remaining results showed reversed direction of TSD influence. TSD potentially leads to worse performance in a relatively easy task in a group of firefighters. Errors during repetitive tasks in firefighting routines could potentially translate into catastrophic consequences.

Apnea and problems

Ear, nose and throat/otolaryngology Research

Comparison of success criteria based on long-term symptoms and new-onset hypertension in mandibular advancement device treatment for obstructive sleep apnoea: observational cohort study

Jee Hye Wee¹, Jae Hyun Lim², January E Gelera^{2,3}, Chae-Seo Rhee², Jeong-Whun Kim²

Objective To identify adequate criteria to determine the success or failure of mandibular advancement device (MAD) treatment for obstructive sleep apnoea (OSA) based on long-term symptoms and new-onset hypertension.

Design Observational cohort study.

Setting A tertiary care hospital setting in South Korea.

Participants Patients (age >18 years) who were diagnosed with OSA by a polysomnography (PSG) or Watch peripheral arterial tonometry (PAT), and who had been treated with MAD between January 2007 and December 2014 were enrolled.

Primary and secondary outcome measures Patients underwent PSG or Watch PAT twice; before and 3 months after the application of MAD. The patients were categorised into success and failure groups using seven different criteria. MAD compliance, witnessed apnoea and snoring, Epworth Sleepiness Scale score and occurrence of new-onset hypertension were surveyed via telephonic interview to determine the criteria that could identify success and failure of MAD.

Results A total of 97 patients were included. The mean follow-up duration was 60.5 months, and the mean apnoea–hypopnoea index (AHI) was 35.5/hour. Two of the seven criteria could significantly differentiate the success and failure groups based on long-term symptoms, including (1) AHI<10/hour with MAD and (2) AHI<10/hour and AHI reduction of >50% with MAD. Kaplan-Meier survival analysis showed that one criterion of AHI<15/hour with MAD could differentiate the success and failure groups based on new-onset hypertension (p=0.035). The receiver operating characteristic curve analysis indicated that the cut-off AHI for new-onset hypertension was 16.8/hour (71.4% sensitivity and 75.0% specificity).

Conclusion Our long-term follow-up survey for symptoms and new-onset hypertension suggested that some of the polysomnographic success criteria, that is, AHI<10/hour with MAD, AHI<10/hour and AHI reduction of >50% with MAD and AHI<15/hour with MAD may be useful in distinguishing the success group from failure one. Further prospective longitudinal studies are warranted to validate these criteria.

14. HEADACHES

CBT helps migraines

Cognitive-behavioral therapy for insomnia to reduce chronic migraine: A sequential Bayesian analysis

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<https://doi.org/10.1111/head.13313>

Background

Insomnia is frequently comorbid with chronic migraine, and small trials suggest that cognitive-behavioral treatment of insomnia (CBTi) may reduce migraine frequency. This study endeavored to provide a quantitative synthesis of existing CBTi trials for adults with chronic migraine using Bayesian statistical methods, given their utility in combining prior knowledge with sequentially gathered data.

Methods

Completer analyses of 2 randomized trials comparing CBTi to a sham control intervention (Calhoun and Ford, 2007; Smitherman et al, 2016) were used to quantify the effects of a brief course of treatment on headache frequency. Change in headache frequency from baseline to the primary endpoint (6-8 weeks posttreatment) was regressed on group status using a Gaussian linear model with each study specified in the order of completion. To estimate the combined effect, posterior distributions from the Calhoun and Ford study were used as informative priors for conditioning on the Smitherman et al data.

Results

In a combined analysis of these prior studies, monthly headache frequency of the treatment group decreased by 6.2 days (95%CrI: -9.7 to -2.7) more than the control group, supporting an interpretation that there is a 97.5% chance that the treatment intervention is at least 2.7 days better than the control intervention. The analysis supports the hypothesis that at least for those who complete treatment, there is high probability that individuals who receive CBTi experience greater headache reduction than those who receive a control intervention equated for therapist time and out-of-session skills practice.

Conclusion

Cognitive-behavioral interventions for comorbid insomnia hold promise for reducing headache frequency among those with chronic migraine. These findings add to a small but growing body of literature that migraineurs with comorbid conditions often respond well to behavioral interventions, and that targeting comorbidities may improve migraine itself.

16. CONCUSSIONS

Post-concussion symptoms

J Child Neurol. 2018 May;33(6):383-388. doi: 10.1177/0883073818759436. Epub 2018 Mar 19.

Postconcussive Symptoms After Single and Repeated Concussions in 10- to 20-Year-Olds: A Cross-Sectional Study.

Oyegbile TO¹, Delasobera BE¹, Zecavati N¹.

The objective was to characterize cognitive deficits and postconcussive symptoms in a pediatric population with no concussion, a single concussion, and ≥ 2 concussions, using a cross-sectional design.

Cognitive function and postconcussive symptoms were assessed in participants (age 10-20) with no concussion (n = 1118), single concussion (n = 368), and repeated (≥ 2) concussions (n = 252). Analyses were adjusted for age and gender. Individuals with ≥ 2 concussions exhibited more total postconcussive symptoms; more loss of consciousness, amnesia and confusion; more headaches; and poorer cognitive function compared to no concussion and single concussion.

Postconcussive symptoms may play a modulatory role in cognitive dysfunction after repeated concussions as those with loss of consciousness, amnesia, confusion, or headaches exhibited worse verbal memory, visual memory, visual-motor processing, and poorer impulse control compared to those without these symptoms. This analysis demonstrates that repeated concussions is associated with poorer cognitive function and postconcussive symptoms compared to a single concussion.

Youth football

Age of First Exposure to Tackle Football and Chronic Traumatic Encephalopathy

Michael L. Alosco PhD Jesse Mez MD, MS Yorghos Tripodis PhD Patrick T. Kiernan BA Bobak Abdolmohammadi BA Lauren Murphy BA Neil W. Kowall MD

Objective: To examine the effect of age of first exposure to tackle football on CTE pathological severity and age of neurobehavioral symptom onset in tackle football players with neuropathologically-confirmed CTE.

Methods: The sample included 246 tackle football players who donated their brains for neuropathological examination. 211 were diagnosed with CTE (126/211 were without comorbid neurodegenerative diseases) and 35 were without CTE. Informant interviews ascertained age of first exposure and age of cognitive and behavioral/mood symptom onset.

Results: Analyses accounted for decade and duration of play. Age of exposure was not associated with CTE pathological severity, or Alzheimer's disease or Lewy body pathology. In the 211 participants with CTE, every one year younger participants began to play tackle football predicted earlier reported cognitive symptom onset by 2.44 years ($p<0.0001$) and behavioral/mood symptoms by 2.50 years ($p<0.0001$). Age of exposure before 12 predicted earlier cognitive ($p<0.0001$) and behavioral/mood ($p<0.0001$) symptom onset by 13.39 and 13.28 years, respectively. In participants with dementia, younger age of exposure corresponded to earlier functional impairment onset. Similar effects were observed in the 126 CTE only participants. Effect sizes were comparable in participants without CTE.

Interpretation: In this sample of deceased tackle football players, younger age of exposure to tackle football was not associated with CTE pathological severity, but predicted earlier neurobehavioral symptom onset. Youth exposure to tackle football may reduce resiliency to late life neuropathology. These findings may not generalize to the broader tackle football population and informant-report may have affected the accuracy of the estimated effects. This article is protected by copyright. All rights reserved.

Concussion and depression

NeuroImage: Clinical Volume 19, 2018, Pages 434-442

Association of acute depressive symptoms and functional connectivity of emotional processing regions following sport-related concussion

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<https://doi.org/10.1016/j.nicl.2018.05.011>Get rights and content

Highlights

- Assessed association of SRC depressive symptoms and functional connectivity
- Depressive symptoms observed across first month post-SRC
- Altered connectivity of emotional processing regions at one month post-injury
- Connectivity of emotional processing regions associated with SRC mood disturbance
- Increased attention-default mode connectivity may reflect compensatory processes

Abstract

Acute mood disturbance following sport-related concussion is common and is known to adversely affect post-concussion symptoms and recovery. The physiological underpinnings of depressive symptoms following concussion, however, are relatively understudied.

We hypothesized that functional connectivity of the emotional processing network would be altered in concussed athletes and associated with the severity of depressive symptoms following concussion. Forty-three concussed collegiate athletes were assessed at approximately one day ($N = 34$), one week ($N = 34$), and one month post-concussion ($N = 30$). Fifty-one healthy contact-sport athletes served as controls and completed a single visit. The Hamilton Rating Scale for Depression (HAM-D) was used to measure depressive symptoms. Resting state fMRI data was collected on a 3 T scanner ($TR = 2$ s) and functional connectivity was calculated in a meta-analytically derived network of regions associated with emotional processing. Concussed athletes had elevated depressive symptoms across the first month post-concussion relative to control athletes, but showed partial recovery by one month relative to more acute visits ($ps < 0.05$).

Concussed athletes had significantly different connectivity in regions associated with emotional processing at one month post-concussion relative to one day post-concussion ($p = 0.002$) and relative to controls ($p = 0.003$), with higher connectivity between default mode and attention regions being common across analyses. Additionally, depressive symptoms in concussed athletes at one day ($p = 0.003$) and one week post-concussion ($p = 7 \times 10^{-8}$) were inversely correlated with connectivity between attention (e.g., right anterior insula) and default mode regions (e.g., medial prefrontal cortex). Finally, the relationships with HAM-D scores were not driven by a general increase in somatic complaints captured by the HAM-D, but were strongly associated with mood-specific HAM-D items.

These results suggest that connectivity of emotional processing regions is associated with acute mood disturbance following sport-related concussion. Increased connectivity between attention and default mode regions may reflect compensatory mechanisms.

20 A. ROTATOR CUFF**Surgery in the older population**

Arthroscopy: The Journal of Arthroscopic & Related Surgery

Outcomes of Arthroscopic Rotator Cuff Repair in Patients Who Are 70 Years of Age or Older Versus Under 70 Years of Age: A Sex- and Tear Size-Matched Case-Control Study

Ji-Yong Gwark, M.D.^a, Chang-Meen Sung, M.D.^b, Jae-Boem Na, M.D., Ph.D.^c, Hyung Bin Park, M.D., Ph.D.^d,

<https://doi.org/10.1016/j.arthro.2018.02.047>

Purpose

To compare the structural and clinical outcomes after arthroscopic rotator cuff repair (ARCR) of a case group aged 70 and above with those of a control group younger than 70, with the 2 groups matched for sex and tear size.

Methods

The case group, comprising 53 patients 70 or older, and the control group, comprising 159 patients younger than 70, all received ARCR to 1 shoulder with symptomatic full-thickness rotator cuff tear. The case and the control subjects, who were matched for sex and tear size to minimize bias related to tendon healing, received ARCR during the same period. The mean age was 71.8 ± 2.6 years in the case group and 59.3 ± 7.1 years in the control group. The minimum follow-up period was 1 year in both groups. Cuff integrity was evaluated using ultrasonography. Structural and clinical outcomes of the 2 groups were compared.

Results

Regarding structural outcomes, the complete healing, partial-thickness retear, and full-thickness retear rates were 66% (35/53), 15% (8/53), and 19% (10/53) in the case group, and 68% (108/159), 19% (30/159), and 13% (21/159), respectively, in the control group. The 2 groups had no significantly different retear rates ($P = .52$). Regarding clinical outcomes, the mean improvements in range of motion, pain, muscle strength, and age- and sex-matched Constant scores were not significantly different between the 2 groups ($P > .37$). The preoperative tear size was significantly associated with retear in both studied groups ($P = .02$).

Conclusions

The clinical and structural outcomes of ARCR in patients 70 or older with symptomatic full-thickness rotator cuff tear are comparable with those in patients younger than 70 with at least 1-year follow-up. Preoperative tear size, a biological factor, is a strong predictor for retear.

56. ATHLETICS**Soccer injuries**

lin J Sport Med. 2018 May;28(3):249-254. doi: 10.1097/JSM.0000000000000425.

Injuries Among Recreational Football Players: Results of a Prospective Cohort Study.

Dönmez G, Korkusuz F, Özçakar L¹, Karanfil Y, Dursun E², Kudaş S³, Doral MN⁴.

OBJECTIVES:

To establish the incidence and patterns of football injuries and associated consequences in daily life and labor loss, among public employees.

DESIGN:

Prospective cohort study.

SETTING:

Football tournament between public employees in Turkey.

PARTICIPANTS:

A total of 1821 recreational players from 78 teams.

MAIN OUTCOME MEASURES:

Injury rates (injuries per 1000 hours of football exposure) during tournament by age group, as well as prevalence, severity, and injury types were recorded. The data regarding the occurrence (eg, location, type, circumstances) and consequences (eg, absenteeism, medical treatment, labor loss) of injuries were collected.

RESULTS:

Of the 1821 football players registered for participation, 57% (n = 1038) were included in the study with the returned questionnaire forms. In total, 257 matches were played with a total exposure time of 5654 hours. A total of 218 injuries were recorded in 192 players (10.5%), resulting in a mean of 0.85 time-loss injuries per match (38.6 per 1000 hours). Severe injuries constituted 42.6% of all injuries, and 28.9% of all injuries caused the participants to be absent at least 1 day for the next working day. The total labor loss was 1196 days for all injuries. The rate of missing subsequent working day was significantly less for muscle injuries (P < 0.05).

CONCLUSIONS:

The risk of injury in recreational football players is relatively high causing significant labor loss. The results suggest that prevention programs should consider specific injury characteristics, as there is a greater incidence of muscle and anterior cruciate ligament injuries in this population.

59. PAIN**Referred pain**

J Pain. 2018 May 16. pii: S1526-5900(18)30184-6. doi: 10.1016/j.jpain.2018.04.018.

EXPERIMENTAL REFERRED PAIN EXTENDS TOWARDS PREVIOUSLY INJURED LOCATION - AN EXPLORATIVE STUDY.

Palsson TS¹, Boudreau SA¹, Krebs HJ¹, Graven-Nielsen T².

Facilitated pain mechanisms have been demonstrated in musculoskeletal pain but it is unclear whether a recent painful injury leaves the pain system sensitized. Pain characteristics were assessed in individuals who recently recovered from ankle pain (recovered pain group; n=25) and sex-matched controls (n=25) in response to tonic-pressure pain and saline-induced pain applied at the shin muscle. Pain intensity and pain referral patterns were recorded bilaterally after the painful muscle stimulus. Pressure pain thresholds (PPTs) were measured at the lower legs and shoulder. Cuff pressure algometry on the lower leg was used to assess pain detection threshold (PDT), pressure evoking 6-cm pain score on a 10-cm visual analogue scale (PVAS6), pain tolerance (PTT), temporal summation of pain (TSP), and conditioned pain modulation (CPM). Compared with controls, saline-induced and pressure-induced pain in the shin muscle were more frequently felt as referred pain in the previously painful ankle ($P<0.05$) and the pain area within the previously affected ankle was larger following saline-induced pain ($P<0.05$). In the recovered pain group, CPM responses and the cuff pressure needed to reach PVAS6 was higher in the previously painful leg compared with the contralateral leg ($P<0.05$). No group differences were found in PPT, PDT, PTT, and TSP.

PERSPECTIVES:

These explorative findings demonstrate that pain mechanisms responsible for pain location may be reorganized and continue to be facilitated despite recovery. A large prospective study is needed to clarify the time profile and functional relevance of such prolonged facilitation in the pain system for e.g. understanding recurring pain conditions.

PMID: 29777951 DOI: 10.1016/j.jpain.2018.04.018

Opioid use and alcohol

J Pain. 2018 May 11. pii: S1526-5900(18)30164-0. doi: 10.1016/j.jpain.2018.04.013.

Alcohol and Opioid Use in Chronic Pain: A Cross-Sectional Examination of Differences in Functioning Based on Misuse Status.

Vowles KE¹, Witkiewitz K², Pielech M², Edwards KA², McEntee ML², Bailey RW², Bolling L², Sullivan MD³.

Opioid misuse is regularly associated with disrupted functioning in those with chronic pain. Less work has examined whether alcohol misuse may also interfere with functioning.

This study examined frequency of opioid and alcohol misuse in 131 individuals (61.1% female) prescribed opioids for the treatment of chronic pain. Participants completed an anonymous survey online, consisting of measures of pain, functioning, and opioid and alcohol misuse. Cut-scores were used to categorize individuals according to substance misuse status; individuals were categorized as follows: 35.9% (n = 47) were not misusing either opioids or alcohol, 22.9% (n = 30) were misusing both opioids and alcohol, 38.2% (n = 50) were misusing opioids alone, and only 3.0% (n = 4) were misusing alcohol alone. A multivariate analysis of variance was performed to examine differences in pain and functioning between groups (after excluding individuals in the alcohol misuse group due to the small sample size). Group comparisons indicated that individuals who were not misusing either substance were less disabled and distressed in comparison to those who were misusing opioids alone or both opioids and alcohol. No differences were indicated between the latter two groups. Overall, the observed frequency of opioid misuse was somewhat higher in comparison to previous work (approximately 1 out of every 3 participants), and misuse of both alcohol and opioids was common (approximately 1 out of every 5 participants). While these data are preliminary, they do suggest that issues of substance misuse in those with chronic pain extends beyond opioids alone.

PERSPECTIVE:

Opioid and alcohol misuse was examined in 131 individuals prescribed opioids for chronic pain. In total, 35.9% were not misusing either, 22.9% were misusing both, 38.2% were misusing opioids, and 3.0% were misusing alcohol. Individuals not misusing either were generally less disabled and distressed compared to those misusing opioids or both.

61. FIBROMYALGIA

A unifying theory

J Neurol Neurosurg Psychiatry. 2018 May 7. pii: jnnp-2017-317823. doi: 10.1136/jnnp-2017-317823.

A unifying theory for cognitive abnormalities in functional neurological disorders, fibromyalgia and chronic fatigue syndrome: systematic review.

Teodoro T^{1,2,3}, Edwards MJ^{1,2}, Isaacs JD^{1,2}.

BACKGROUND:

Functional cognitive disorder (FCD) describes cognitive dysfunction in the absence of an organic cause. It is increasingly prevalent in healthcare settings yet its key neuropsychological features have not been reported in large patient cohorts. We hypothesised that cognitive profiles in fibromyalgia (FM), chronic fatigue syndrome (CFS) and functional neurological disorders (FNDs) would provide a template for characterising FCD.

METHODS:

We conducted a systematic review of studies with cognition-related outcomes in FM, CFS and FND.

RESULTS:

We selected 52 studies on FM, 95 on CFS and 39 on FND. We found a general discordance between high rates of subjective cognitive symptoms, including forgetfulness, distractibility and word-finding difficulties, and inconsistent objective neuropsychological deficits. Objective deficits were reported, including poor selective and divided attention, slow information processing and vulnerability to distraction. In some studies, cognitive performance was inversely correlated with pain, exertion and fatigue. Performance validity testing demonstrated poor effort in only a minority of subjects, and patients with CFS showed a heightened perception of effort.

DISCUSSION:

The cognitive profiles of FM, CFS and non-cognitive FND are similar to the proposed features of FCD, suggesting common mechanistic underpinnings. Similar findings have been reported in patients with mild traumatic brain injury and whiplash. We hypothesise that pain, fatigue and excessive interoceptive monitoring produce a decrease in externally directed attention. This increases susceptibility to distraction and slows information processing, interfering with cognitive function, in particular multitasking. Routine cognitive processes are experienced as unduly effortful.

This may reflect a switch from an automatic to a less efficient controlled or explicit cognitive mode, a mechanism that has also been proposed for impaired motor control in FND. These experiences might then be overinterpreted due to memory perfectionism and heightened self-monitoring of cognitive performance.

62 A. NUTRITION/VITAMINS**Vit D**

Pain. 2018 Jun;159(6):1074-1082. doi: 10.1097/j.pain.0000000000001189.

Monthly vitamin D supplementation, pain, and pattern of analgesic prescription: secondary analysis from the randomized, double-blind, placebo-controlled Vitamin D Assessment study.

Wu Z¹, Camargo CA Jr², Malihi Z¹, Bartley J³, Waayer D¹, Lawes CMM¹, Toop L⁴, Khaw KT⁵, Scragg R¹.

Observational studies suggest that vitamin D deficiency is associated with higher risk of pain. However, evidence on the effect of vitamin D supplementation on pain is limited and contradictory.

The aim of this study was to compare the effect of monthly high-dose vitamin D supplementation on a pain impact questionnaire (PIQ-6) score and prescription of analgesics in the general population. We performed a randomized, double-blind, placebo-controlled trial of 5108 community-dwelling participants, aged 50 to 84 years, who were randomly assigned to receive monthly 100,000-IU capsules of vitamin D3 (n = 2558) or placebo (n = 2550) for a median of 3.3 years. The PIQ-6 was administered at baseline, year 1, and final follow-up. Analgesic prescription data were collected from Ministry of Health. There was no difference in mean PIQ-6 score at the end of follow-up (adjusted mean difference: 0.06; P = 0.82) between the vitamin D (n = 2041) and placebo (n = 2014) participants. The proportion of participants dispensed one or more opioids was similar in the vitamin D group (n = 559, 21.9%) compared with placebo (n = 593, 23.3%); the relative risk (RR) adjusted for age, sex, and ethnicity was 0.94 (P = 0.24). Similar results were observed for dispensing of nonsteroidal anti-inflammatory drugs (RR = 0.94; P = 0.24) and other nonopioids (RR = 0.98; P = 0.34).

Focusing on vitamin D deficient participants (<50 nmol/L, 24.9%), there was a lower risk of dispensing nonsteroidal anti-inflammatory drugs in the vitamin D group compared with placebo (RR = 0.87; P = 0.009); all other subgroup analyses were not significant. Long-term monthly high-dose vitamin D supplementation did not improve mean PIQ-6 score or reduce analgesic dispensing in the general population.

Glycemic index

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Association between dietary glycemic index and glycemic load with depression: a systematic review.

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BACKGROUND:

A combination of genetic and environmental factors is involved in depression etiology. During the last years, the prevalence of depression has increased in both developed and developing countries. Several studies indicated an association between dietary glycemic index (GI) and glycemic load (GL) with risk of depression. This systematic review was undertaken to summarize the effect of these diet indicators in depression pathogenesis.

METHODS:

A comprehensive search strategy was performed in the Pubmed, Embase, Cochrane Library and Scopus databases from 1966 to March 2017. Finally, six studies (three prospective cohort studies and three cross-sectional) were ultimately selected for inclusion in the systematic review.

RESULTS:

75298 adults and elderly entered the reviewed studies. All of the included studies had high methodological quality. The present study indicated that the intake of foods with higher GI is associated with disease risk. However, the relationship was found to be inverse for GL, though the association was rather weak.

CONCLUSIONS:

Overall, the findings indicated that a diet with lower dietary glycemic index may be effective to reduce the risk or risk of depression.