2. LBP

Stenosis assessment

Spine (Phila Pa 1976). 2008 Jan 1;33(1):61-7. doi: 10.1097/BRS.0b013e31815e395f.

The effect of body position and axial load on spinal canal morphology: an MRI study of central spinal stenosis.

Madsen R[1], Jensen TS, Pope M, Sørensen JS, Bendix T.

STUDY DESIGN:
A method comparison study.

OBJECTIVE:
To investigate the effect of body position and axial load of the lumbar spine on disc height, lumbar lordosis, and dural sac cross-sectional area (DCSA). SUMMARY OF BACKGROUND DATA.: The effects of flexion and extension on spinal canal diameters and DCSA are well documented. However, the effects of axial loading, achieved by upright standing or by a compression device, are still unclear.

METHODS:
Patients with lumbar spinal stenosis were examined in 2 separate studies, including 16 and 20 patients, respectively. In section 1, magnetic resonance imaging (MRI) scans were performed during upright standing and supine positions with and without axial load. In section 2, MRI scans were performed exclusively in supine positions, one with flexion of the lumbar spine (psoas-relaxed position), an extended position (legs straight), and an extended position with applied axial loading. Disc height, lumbar lordosis, and DCSA were measured and the different positions were compared.

RESULTS:
In section 1, the only significant difference between positions was a reduced lumbar lordosis during standing when compared with lying ($P = 0.04$), most probably a consequence of precautions taken to secure immobility during the vertical scans. This seemingly makes our standing posture less valuable as a standard of reference. In section 2, DCSA was reduced at all 5 lumbar levels after extension, and further reduced at 2 levels after adding compression ($P < 0.05$). Significant reductions of disc height were found at 3 motion segments and of DCSA at 11 segments after compression, but these changes were never seen in the same motion segment.

CONCLUSION:
Horizontal MRI with the patient supine and the legs straightened was comparable to vertical MRI whether axial compression was added or not. Extensionwas the dominant cause rather than compression in reducing DCSA. Axial load was not considered to have a clinically relevant effect on spinal canal diameters.

ABSTRACTS

Emotional components of LBP

Emotional Effects on Factors Associated with Chronic Low Back Pain

Authors Ouchi K, Watanabe M, Tomiyama C, Nikaido T, Oh Z, Hirano T, Akazawa K, Mandai N
DOI https://doi.org/10.2147/JPR.S223190

Purpose: Although chronic low back pain (CLBP) has profound effects on patients, society, and economy, its causes are difficult to identify. Psychogenic effects or social stress is known to affect CLBP; hence, investigation of its underlying causes requires a multifactorial approach. We determined the factors associated with CLBP by using an Internet-based survey. To prevent CLBP, we need to understand its cause and background.
Patients and methods: A total of 1000 participants either with (+) or without (−) CLBP answered the Japanese Orthopaedic Association Back Pain Evaluation Questionnaire (JOABPEQ), which assesses five domains of CLBP: low back pain, lumbar function, walking ability, social life function and mental health. We also administered a new questionnaire for participants, that comprised five different domains: Body, Lifestyle, Emotion, Diet, and Social. To evaluate psychogenic effects on CLBP, we added two original factors, namely outshout and *HIE*, which have not yet been studied. *HIE* is a traditional concept (sense) of "feeling cold" or "chilly." All participants completed both questionnaires.
Results: Multivariate logistic regression analysis extracted four factors (sleep, room temperature, outshout, and *HIE*) that were associated with CLBP. The mental health domain was assessed using the JOABPEQ for each of these factors. The factors outshout and *HIE* differed between CLBP (+) and CLBP (−) patients. CLBP (−) participants also showed a difference in Sleep and *HIE* factors.
Conclusion: Among psychogenic effects, Emotion was common to all the four extracted factors. There was no common physical divisor. Therefore, we hypothesized that acute low back pain might develop into CLBP in the presence of psychological stress or other emotional factors such as outshout or *HIE*. Hence, we need to consider both physical and psychogenic effects in the prevention and treatment of CLBP. Furthermore, appropriate evaluation and treatment of psychological stress may be effective in reducing CLBP.

5. LUMBAR SURGERIES

Total disc replacements effective

Spine (Phila Pa 1976). 2019 Dec 15;44(24):1685-1696. doi: 10.1097/BRS.0000000000003171.

Five-year Results of a Randomized Controlled Trial for Lumbar Artificial Discs in Single-level Degenerative Disc Disease.

Yue JJ[1], Garcia R[2], Blumenthal S[3], Coric D[4], Patel VV[5], Dinh DH[6], Buttermann GR[7], Deutsch H[8], Miller LE[9], Persaud EJ[10], Ferko NC[10].

STUDY DESIGN:
A prospective, multicenter, randomized, controlled, investigational device exemption (IDE) noninferiority trial.

OBJECTIVE:
The aim of this study was to compare the 5-year safety and effectiveness of the activL Artificial Disc with Control Total Disc Replacement (TDR) systems (ProDisc-L or Charité) in the treatment of patients with symptomatic single-level lumbar degenerative disc disease (DDD).

SUMMARY OF BACKGROUND DATA:
The activL Artificial Disc received Food and Drug Administration approval in 2015 based on 2-year follow-up data.

METHODS:
Eligible patients presented with symptomatic, single-level, lumbar DDD who failed ≥6 months of nonsurgical management. At entry, 324 patients were randomly allocated (2:1) to treatment with activL (n=218) or Control (n=106, including n=65 ProDisc-L and n=41 Charité) TDR. At 5-year follow up, a total of 261 patients (176 activL patients and 85 Control patients) were available for analysis.

RESULTS:
The primary composite endpoint at 5 years for activL patients was noninferior to Control TDR. Relative to baseline, reductions in back pain severity and improvements in Oswestry Disability Index (ODI) were maintained for both the activL and Control TDR groups through 5 years. The activL group showed significantly better range of motion for flexion-extension rotation, flexion-extension translation, and disc angle, compared with Control TDR. Freedom from a serious adverse event through 5 years was 64% in activL patients, 47% in Control patients (log-rank P=0.0068). Freedom from index-level and adjacent-level reoperation was high for TDR patients, ranging between 94% and 99%, respectively.

CONCLUSION:
Long-term evidence supports lumbar total disc replacement as safe. The next-generation activL Artificial Disc is more effective at preserving range of motion than first-generation lumbar TDRs (ProDisc-L and Charité) and offers a higher safety profile. Other primary and secondary outcomes are similar between disc designs.

7. PELVIC ORGANS/WOMAN'S HEALTH

Alcohol consumption increases risk of breast CA

Int J Cancer. 2019 Dec 21. doi: 10.1002/ijc.32846

The impact of alcohol consumption and physical activity on breast cancer: the role of breast cancer risk.

Rainey L[1], Eriksson M[2], Trinh T[2], Czene K[2], Broeders MJM[1,3], van der Waal D[1], Hall P[2,4].

High alcohol consumption and physical inactivity are known breast cancer risk factors.

However, whether the association between these lifestyle factors and breast cancer is modified by a woman's additional breast cancer risk factors has never been studied. Therefore, a population-based prospective cohort study of 57,654 Swedish women aged 40-74 years, including 957 breast cancer cases, was performed. Alcohol consumption and physical activity were measured with validated web-based self-report questionnaires. The Tyrer-Cuzick risk prediction model was used to determine a woman's 10-year risk of developing breast cancer. Logistic regression models were used to explore whether the effect of alcohol consumption and physical activity on breast cancer was modified by additional breast cancer risk factors.

Findings showed that increased alcohol consumption was associated with a higher breast cancer risk (OR=1.26, 95% CI 1.01, 1.59). However, the association between lifestyle factors (alcohol consumption and physical activity) and breast cancer was generally the same for women at below average, average, and above average risk of developing breast cancer. Therefore, additional breast cancer risk factors do not appear to modify the association between lifestyle (alcohol consumption and physical activity) and breast cancer. Considering the general health benefits, preventative lifestyle recommendations can be formulated about alcohol consumption and physical activity for women at all levels of breast cancer risk.

Anemia and autism

JAMA Psychiatry. 2019 Sep 18:1-12. doi: 10.1001/jamapsychiatry.2019.2309

Association of Prenatal Maternal Anemia With Neurodevelopmental Disorders.

Wiegersma AM[1], Dalman C[1,2], Lee BK[3,4], Karlsson H[5], Gardner RM[1].

IMPORTANCE:
Given the critical role that iron plays in neurodevelopment, an association between prenatal iron deficiency and later risk of neurodevelopmental disorders, such as autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), and intellectual disability (ID), is plausible.

OBJECTIVE:
To test the a priori hypothesis that anemia diagnosed in mothers during pregnancy is associated with an increased risk of ASD, ADHD, and ID in offspring and that the magnitude of the risk varies with regard to the timing of anemia in pregnancy.

DESIGN, SETTING, AND PARTICIPANTS:
This cohort study used health and population register data from the Stockholm Youth Cohort to evaluate 532 232 nonadoptive children born from January 1, 1987, to December 31, 2010, in Sweden, with follow-up in health registers until December 31, 2016. Data analysis was performed from January 15, 2018, to June 20, 2018.

EXPOSURES:
Registered diagnoses of anemia during pregnancy. Gestational timing of the first recorded anemia diagnosis (≤30 weeks or >30 weeks) was considered to assess potential critical windows of development.

MAIN OUTCOMES AND MEASURES:
Registered diagnoses of ASD, ADHD, or ID or co-occurring combinations of these disorders.

RESULTS:
The cohort included 532 232 individuals (272 884 [51.3%] male) between 6 and 29 years of age at the end of follow-up (mean [SD] age, 17.6 [7.1] years) and their 299 768 mothers. The prevalence of ASD, ADHD, and ID was higher among children born to mothers diagnosed with anemia within the first 30 weeks of pregnancy (4.9% ASD, 9.3% ADHD, and 3.1% ID) compared with mothers with anemia diagnosed later in pregnancy (3.8% ASD, 7.2% ADHD, and 1.1% ID) or mothers not diagnosed with anemia (3.5% ASD, 7.1% ADHD, and 1.3% ID). Anemia diagnosed during the first 30 weeks of pregnancy but not later was associated with increased risk of diagnosis of ASD (odds ratio [OR], 1.44; 95% CI, 1.13-1.84), ADHD (OR, 1.37; 95% CI, 1.14-1.64), and ID (OR, 2.20; 95% CI, 1.61-3.01) in offspring in models that included socioeconomic, maternal, and pregnancy-related factors. Early anemia diagnosis was similarly associated with risk of ASD (OR, 2.25; 95% CI, 1.24-4.11) and ID (OR, 2.59; 95% CI, 1.08-6.22) in a matched sibling comparison. Considering mutually exclusive diagnostic groups, we observed the strongest association between anemia and ID without co-occurring ASD (OR, 2.72; 95% CI, 1.84-4.01). Associations of these disorders with anemia diagnosed later in pregnancy were greatly diminished.

CONCLUSIONS AND RELEVANCE:
In contrast to maternal anemia diagnosed toward the end of pregnancy, anemia diagnosed earlier in pregnancy was associated with increased risk of the development of ASD, ADHD, and particularly ID in offspring. Given that iron deficiency and anemia are common among women of childbearing age, our findings emphasize the importance of early screening for iron status and nutritional counseling in antenatal care.

Dyspareunia with tearing

BMJ Open. 2019 Dec 16;9(12):e032368. doi: 10.1136/bmjopen-2019-032368.

Obstetric perineal tears, sexual function and dyspareunia among primiparous women 12 months postpartum: a prospective cohort study.

Gommesen D[1,2], Nøhr E[3,2], Qvist N[3,4], Rasch V[3,2].

OBJECTIVE:
Sexuality is an important aspect of human identity and contributes significantly to the quality of life in women as well as in men. Impairment in sexual health after vaginal delivery is a major concern for many women. We aimed to examine the association between degree of perineal tear and sexual function 12 months postpartum.

DESIGN:
A prospective cohort study SETTING: Four Danish hospitals between July 2015 and January 2019 PARTICIPANTS: A total of 554 primiparous women: 191 with no/labia/first-degree tears, 189 with second-degree tears and 174 with third-degree/fourth-degree tears. Baseline data were obtained 2 weeks postpartum by a questionnaire and a clinical examination. Sexual function was evaluated 12 months postpartum by an electronic questionnaire (Pelvic Organ Prolapse/Urinary Incontinence Sexual Function Questionnaire (PISQ-12)) and a clinical examination.

PRIMARY OUTCOME MEASURES:
Total PISQ-12 score and dyspareunia RESULTS: Episiotomy was performed in 54 cases and 95 women had an operative vaginal delivery. The proportion of women with dyspareunia was 25%, 38% and 53% of women with no/labia/first-degree, second-degree or third-degree/fourth-degree tears, respectively.Compared with women with no/labia/first-degree tears, women with second-degree or third-degree/fourth-degree tears had a higher risk of dyspareunia (adjusted relative risk (aRR) 2.05; 95% CI 1.51 to 2.78 and aRR 2.09; 95% CI 1.55 to 2.81, respectively). Women with third-degree/fourth-degree tears had a higher mean PISQ-12 score (12.2) than women with no/labia/first-degree tears (10.4).

CONCLUSIONS:
Impairment of sexual health is common among primiparous women after vaginal delivery. At 12 months postpartum, more than half of the women with a third-degree/fourth-degree tear experienced dyspareunia. Women delivering with no/labia/first-degree tears reported the best outcomes overall. Thus, it is important to minimise the extent of perineal trauma and to counsel about sexuality during and after pregnancy.

Weight loss reduces risk of breast CA

Sustained weight loss and risk of breast cancer in women ≥50 years: a pooled analysis of prospective data

Lauren R Teras, PhD, Alpa V Patel, PhD, Molin Wang, PhD, Shiaw-Shyuan Yaun, MPH, Kristin Anderson, PhD, Roderick Brathwaite, MS, Bette J Caan, DrPH, Yu Chen, PhD, Avonne E Connor, PhD, A Heather Eliassen, ScD ... Show more

JNCI: Journal of the National Cancer Institute, djz226, https://doi.org/10.1093/jnci/djz226

BACKGROUND

Excess body weight is an established cause of postmenopausal breast cancer, but it is unknown if weight loss reduces risk.

METHODS

Associations between weight change and risk of breast cancer were examined among women aged ≥50 years in the Pooling Project of Prospective Studies of Diet and Cancer. In 10 cohorts, weight assessed on three surveys was used to examine weight change patterns over approximately 10 years (Interval 1 median= 5.2 years; Interval 2 median = 4.0 years). Sustained weight loss was defined as ≥ 2kg lost in Interval 1 that was not regained in Interval 2. Among 180,885 women, 6,930 invasive breast cancers were identified during follow-up.

RESULTS

Compared with women with stable weight (± 2kg), women with sustained weight loss had a lower risk of breast cancer. This risk reduction was linear and specific to women not using postmenopausal hormones (>2-4.5kg lost: Hazard Ratio (HR)= 0.82, 95% confidence interval (CI): 0.70-0.96; >4.5-<9kg lost: HR = 0.75, 95% CI: 0.63-0.90; ≥9kg lost: HR = 0.68, 95% CI: 0.50-0.93). Women who lost ≥9kg and gained some (but not all) of it back were also at a lower risk of breast cancer. Other patterns of weight loss and gain over the two intervals had a similar risk of breast cancer to women with stable weight.

CONCLUSIONS

These results suggest that sustained weight loss, even modest amounts, is associated with lower breast cancer risk for women aged ≥50 years. Breast cancer prevention may be a strong weight loss motivator for the two-thirds of American women who are overweight or obese.

Lifetime ovulation and inflammatory signs

Am J Epidemiol. 2019 Dec 17. pii: kwz264. doi: 10.1093/aje/kwz264

Estimated Lifetime Ovulatory Years and Its Determinants in Relation to Circulating Inflammatory Biomarkers.

Huang T[1], Shafrir AL[2,3], Eliassen AH[1,4], Rexrode KM[5,6], Tworoger SS[4,7].

Reproductive events, such as ovulation, trigger an inflammatory cascade. Few studies have examined their long-term influence on inflammatory profiles.

We included 3,393 premenopausal and 3,915 postmenopausal women with intact ovaries/uterus from the Nurses' Health Studies, and estimated lifetime ovulatory years (LOY) as age at menopause (age at blood collection for premenopausal women) minus age at menarche, years of oral contraceptive (OC) use, and one year per pregnancy. After adjusting for other inflammation-related factors (e.g., BMI, exercise, diet, etc.), every 5-year increase in LOY was associated with lower C-reactive protein (CRP) in premenopausal (-11.5%; 95% CI: -15.0, -8.0; p<0.0001) and postmenopausal women (-7.2%; 95% CI: -10.0, -4.3; p<0.0001). Older age at menopause (p=0.007), earlier menarche (p=0.007), and shorter duration of OC use (p=0.002) were associated with lower CRP levels in postmenopausal women, whereas only OC duration was positively associated in premenopausal women (p<0.0001). LOY was modestly inversely associated with interleukin-6 only in postmenopausal women (p=0.04).

Notably, the associations of CRP with LOY were similar in magnitude compared to those with exercise and a healthy diet, although weaker than that with BMI. Although many reproductive events induce acute inflammation, increased LOY was associated with lower chronic systemic inflammation even after menopause.

Alcohol consumption does not increase BC risk but smoking does

Alcohol consumption, cigarette smoking, and risk of breast cancer for *BRCA1* and *BRCA2* mutation carriers: Results from The BRCA1 and BRCA2 Cohort Consortium

Cancer Epidemiology, Biomarkers & Prevention — Li H, Terry MB, Antoniou AC, et al. | December 12, 2019

Since mutation carriers have high breast cancer (BC) risk and *BRCA1* and *BRCA2* hold importance in DNA repair, researchers investigated the links of alcohol intake and tobacco smoking with the risk of breast cancer in a large international pooled cohort of *BRCA1* and *BRCA2* mutation carriers. Employing Cox proportional hazards models, retrospective (5,707 *BRCA1* mutation carriers; 3,525 *BRCA2* mutation carriers) and prospective (2,276 *BRCA1* mutation carriers; 1,610 *BRCA2* mutation carriers) analyses of alcohol and tobacco intake were carried out. The HR from retrospective analysis and from the prospective analysis was 1.19 and 1.36, respectively, for *BRCA1* mutation carriers.

There was no link between alcohol intake and BC risk, for both carrier groups. Overall, an increased BC risk related to smoking during the pre-reproductive years was revealed for mutation carriers.

8. VISCERA

CD and previous antibiotic use

J Gastroenterol Hepatol. 2019 Nov 16. doi: 10.1111/jgh.14928.

Infection, antibiotic exposure, and risk of celiac disease: A systematic review and meta-analysis.

Jiang HY[1], Zhang X[1], Zhou YY[2], Jiang CM[3], Shi YD[4].

BACKGROUND AND AIM:
There is evidence of a relationship between infection (and the associated antibiotic exposure) and the risk of celiac disease (CD). This study performed a meta-analysis to investigate this relationship.

METHODS:
To identify relevant studies, we conducted systematic searches of the PubMed, Embase, and Cochrane databases for articles published up to April 2019. Random effects models were used to determine overall pooled estimates and 95% confidence intervals (CIs).

RESULTS:
The meta-analysis included 19 observational studies (15 on infection and six on antibiotic exposure). Our results showed that any infection was associated with an increased risk of CD later in life (odds ratio, 1.37; 95% CI: 1.2-1.56; $P < 0.001$). The I^2 was 94% (high heterogeneity among studies). Subgroup analyses suggested that the risk of CD is not affected by the type of infectious agent, timing of exposure, and site of infection. Exposure to antibiotics was also associated with new-onset CD (odds ratio, 1.2; 95% CI: 1.04-1.39; $P < 0.001$).

CONCLUSION:
Exposure to early infection or antibiotic appears to increase the odds of developing CD, suggesting that intestinal immune or microbiota dysbiosis may play a role in the pathogenesis of CD. These findings may influence clinical management and primary prevention of CD. However, noncausal explanations for these positive associations cannot be excluded.

Early life trauma influences IBS

J Clin Gastroenterol. 2020 Jan;54(1):63-69. doi: 10.1097/MCG.0000000000001153.

Risk and Protective Factors Related to Early Adverse Life Events in Irritable Bowel Syndrome.

Ju T[1], Naliboff BD[1], Shih W[1,2], Presson AP[3], Liu C[1], Gupta A[1], Mayer EA[1], Chang L[1].

BACKGROUND:
Irritable bowel syndrome (IBS) is a stress-sensitive disorder of brain-gut interactions associated with a higher prevalence of early adverse life events (EALs). However, it is incompletely understood how trauma severity or disclosure influence the risk of developing IBS or symptom severity.

AIMS:
To determine whether (1) IBS patients report a greater number of EALs compared with healthy controls; (2) trauma severity and first age of EAL increase the odds of IBS; (3) confiding in others reduces the odds of IBS; (4) the number, trauma severity, and first age of EAL are associated with symptom severity; (5) sex differences exist.

METHODS:
In total, 197 IBS patients (72% women, mean age=30.28 y) and 165 healthy controls (59% women, mean age=30.77 y) completed the Childhood Traumatic Events Scale, measuring severity of EALs and degree of confiding in others. Regression analyses were used to predict IBS status from EALs and association between gastrointestinal symptoms and EALs.

RESULTS:
A greater number of EALs [odds ratio (OR)=1.36, 95% confidence interval (CI), 1.14-1.62; P<0.001] and higher perceived trauma severity (OR=1.13, 95% CI, 1.08-1.19; P<0.001) were associated with increased odds of IBS. Confiding in others decreased the odds of having IBS (OR=0.83, 95% CI, 0.72-0.96; P=0.012). The first age of EAL was not predictive of IBS. No sex differences were found.

CONCLUSIONS:
Assessing the traumatic severity of EALs and amount of confiding in others is important as they can affect the risk of having IBS. Our findings emphasize early intervention to improve health outcomes in individuals with EALs

ABSTRACTS

Relationship between celiac disease and psoriasis

Journal of the American Academy of Dermatology

Association between psoriasis and celiac disease: a systematic review and meta-analysis

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https://doi.org/10.1016/j.jaad.2019.11.039Get rights and content

Abstract

Background
Multiple studies have examined the association between psoriasis and celiac disease (CD). However, these studies have shown conflicting results.

Objective
This study aims to analyze the association between psoriasis and CD.

Methods
We conducted a systematic review of the case-control, cross-sectional and cohort studies examining the association between psoriasis and CD in PubMed, Scopus and Cochrane databases. The adjusted effect sizes or crude data were extracted for quantitative analysis.

Results
Of initially identified 754 citations, 18 studies were included. Random effects meta-analysis found significant odds ratios (ORs) of 2.16 [95% confidence interval(CI), 1.74 to 2.69, 9 studies] for CD in psoriasis patients and 1.8 [95% CI 1.36 to 2.38, 8 studies] for psoriasis in CD patients. We also found a significantly increased risk of new-onset psoriasis in CD [hazard ratio = 1.75, 95% CI 1.58 to 1.93]. Subgroup analyses according to disease severity and geographical region could not be performed due to limited data.

Conclusions
This two-way meta-analyses found a significant association between psoriasis and CD. Clinicians should be aware of this association and the psoriasis patients with bowel complaints might benefit from screening for celiac disease through questionnaires or interviews with subsequent gastroenterology consultation.

13 B. TMJ/ORAL

Periodontal disease and hypertension

Cardiovasc Res. 2020 Jan 1;116(1):28-39. doi: 10.1093/cvr/cvz201.

Periodontitis is associated with hypertension: a systematic review and meta-analysis.

Muñoz Aguilera E[1,2], Suvan J[1], Buti J[1], Czesnikiewicz-Guzik M[3,4,5,6], Barbosa Ribeiro A[3,4,7], Orlandi M[1], Guzik TJ[3,4,5,6], Hingorani AD[8], Nart J[2], D'Aiuto F[1].

Recent evidence suggests a link between periodontitis (PD) and hypertension, but the nature of this association remains unclear.

The overall aim of this review was to critically appraise the evidence linking these two common disorders. Systematic search was conducted for studies published up to December 2018. Prevalence of hypertension in patients with PD (moderate/severe groups) vs. those without PD (non-PD) was the primary outcome. Additional outcomes included adjusted mean difference in systolic (SBP) and diastolic (DBP) blood pressure (BP) levels in PD vs. non-PD, assessment of biomarkers in PD and hypertension, and BP changes after periodontal therapy. From 81 studies selected, 40 were included in quantitative meta-analyses. Diagnoses of moderate-severe PD [odds ratio (OR) = 1.22; 95% confidence interval (CI): 1.10-1.35] and severe PD (OR = 1.49; 95% CI: 1.09-2.05) were associated with hypertension. Prospective studies confirmed PD diagnosis increased likelihood of hypertension occurrence (OR = 1.68; 95% CI: 0.85-3.35). Patients with PD exhibited higher mean SBP [weighted mean difference (WMD) of 4.49 mmHg; 95% CI: 2.88-6.11] and DBP (2.03 mmHg; 95% CI: 1.25-2.81) when compared with non-PD. Lastly, only 5 out of 12 interventional studies confirmed a reduction in BP following periodontal therapy, ranging from 3 to 12.5 mmHg of SBP and from 0 to 10 mmHg of DBP. PD is associated with increased odds of hypertension (SORT C) and higher SBP/DBP levels.

The evidence suggesting that PD therapy could reduce BP is inconclusive. Although additional research is warranted on this association, these results suggest that oral health assessment and management of PD could not only improve oral/overall health and quality of life but also be of relevance in the management of patients with hypertension.

13 D. SLEEP

Sleep and concussion

Neurobiol Dis. 2019 Nov 18;134:104679. doi: 10.1016/j.nbd.2019.104679.

A randomized, double-blind, placebo-controlled trial of blue wavelength light exposure on sleep and recovery of brain structure, function, and cognition following mild traumatic brain injury.

Killgore WDS[1], Vanuk JR[2], Shane BR[2], Weber M[2], Bajaj S[2].

Sleep and circadian rhythms are among the most powerful but least understood contributors to cognitive performance and brain health.

Here we capitalize on the circadian resetting effect of blue-wavelength light to phase shift the sleep patterns of adult patients (aged 18-48 years) recovering from mild traumatic brain injury (mTBI), with the aim of facilitating recovery of brain structure, connectivity, and cognitive performance. During a randomized, double-blind, placebo-controlled trial of 32 adults with a recent mTBI, we compared 6-weeks of daily 30-min pulses of blue light (peak λ = 469 nm) each morning versus amber placebo light (peak λ = 578 nm) on neurocognitive and neuroimaging outcomes, including gray matter volume (GMV), resting-state functional connectivity, directed connectivity using Granger causality, and white matter integrity using diffusion tensor imaging (DTI). Relative to placebo, morning blue light led to phase-advanced sleep timing, reduced daytime sleepiness, and improved executive functioning, and was associated with increased volume of the posterior thalamus (i.e., pulvinar), greater thalamo-cortical functional connectivity, and increased axonal integrity of these pathways.

These findings provide insight into the contributions of the circadian and sleep systems in brain repair and lay the groundwork for interventions targeting the retinohypothalamic system to facilitate injury recovery.

Sleep disruption/frequent urination

J Am Geriatr Soc. 2019 Dec;67(12):2610-2614. doi: 10.1111/jgs.16144. Epub 2019 Aug 22.

Nocturnal Excretion in Healthy Older Women and Rationale for a Safer Approach to Sleep Disruption.

Tyagi S[1], Perera S[1], Clarkson BD[1], Tadic SD[1], Resnick NM[1].

OBJECTIVES:
Insomnia, especially difficulty maintaining sleep, is prevalent among older adults and increases the incidence of falls and fractures. Moreover, the drugs used to treat it exacerbate the risk. Yet current therapies fail to address one of its most common causes in older adults: nocturia and its primary contributor, nocturnal polyuria (NP), especially among the majority of individuals without lower urinary tract symptoms (LUTS). Therefore, we examined the factors associated with nocturia in two groups of such older women and the impact of nocturia on sleep.

DESIGN:
Secondary analysis of two observational studies of bladder function in carefully evaluated healthy older women.

SETTING:
Academic medical center.

PARTICIPANTS:
A total of 39 women without LUTS who had adequate fluid intake (ie, >1200 mL urine output/24 h recorded on their diary), normal videourodynamic testing, and normal daytime frequency (≤7 voids).

MEASUREMENTS:
Voided volumes and sleep duration obtained from subjects' 3-day voiding diary, and sleep quality from the Center for Epidemiologic Studies Depression Scale. Nighttime excretion of more than 33% of 24-hour urine volume was considered NP.

RESULTS:
Overall, 21 of these healthy subjects (54%) awakened at least once nightly to void, and 19 (90%) of them had NP. Compared with those without nocturia, participants with nocturia had shorter duration of the first uninterrupted sleep period (182 ± 100 vs 250 ± 60 min; P = .03), and they reported worse sleep quality. Two factors contributed independently to nocturia: (1) a larger proportion of 24-hour urine output at night (43.4 ± 7.4% vs 25.4 ± 5.5%; P = <.001) and (2) smaller bladder capacity (484 ± 157 mL vs 608 ± 167 mL; P = .02).

CONCLUSIONS:
Nocturia, NP, and reduced bladder capacity are very common even in healthy older women without LUTS and are associated with impaired sleep. Thus applying currently available modalities to address both NP and reduced bladder capacity may effectively treat sleep disruption without incurring the complications of sedative-hypnotics. J Am Geriatr Soc 67:2610-2614, 2019.

Sleep disturbances and carotid arterisclosis

Stroke. 2019 Dec;50(12):3340-3346. doi: 10.1161/STROKEAHA.118.022184. Epub 2019 Oct 15.

Associations Between Sleep Apnea and Subclinical Carotid Atherosclerosis: The Multi-Ethnic Study of Atherosclerosis.

Zhao YY[1], Javaheri S[1], Wang R[1,2], Guo N[1], Koo BB[3], Stein JH[4], Korcarz CE[4], Redline S[1,5].

Background and Purpose- Many health effects of sleep apnea (SA) may be mediated through accelerated atherosclerosis. We examined the associations of snoring and several measurements of SA with subclinical carotid atherosclerosis in a large multiethnic population sample.

Methods- This analysis included 1615 participants (mean age, 68 years) from examination 5 (2010-2013) of the MESA study (Multi-Ethnic Study of Atherosclerosis). Sleep measures including SA (apnea-hypopnea index [4%], ≥15 events/hour) were derived from full in-home polysomnography. Carotid atherosclerosis was measured using high-resolution B-mode ultrasound. Multivariable linear and logistic regression models were used to evaluate the associations between sleep exposures with carotid intima-media thickness and the presence of carotid plaque, respectively. Effect modification by age, sex, and race/ethnicity was examined.

Results- In multivariable analysis, SA was associated with an increased odds of carotid plaque presence in individuals aged <68 years (odds ratio, 1.47; 95% CI, 1.05-2.06) but not in older individuals (odds ratio, 0.95; 95% CI, 0.67-1.37; *P* interaction=0.078). Greater hypoxemia (sleep time <90% saturation) was associated with increasing carotid intima-media thickness in younger (0.028±0.014 mm) but not in older individuals (-0.001±0.013 mm; *P* interaction=0.106). Self-reported snoring was not associated with carotid atherosclerosis. In assessing race-specific outcomes, greater hypoxemia was associated with increased carotid intima-media thickness in blacks (0.049±0.017 mm; *P* interaction=0.033).

Conclusions- In this large multiethnic population-based sample, sleep disturbances are associated with subclinical carotid atherosclerosis in both men and women, particularly in those <68 years of age. The mechanisms underlying the association between SA and carotid atherosclerosis may differ for carotid plaque and carotid intima-media thickness.

Connection of insomnia and dementia

Aging Ment Health. 2019 Dec 3:1-6. doi: 10.1080/13607863.2019.1695737.

Are symptoms of insomnia in primary care associated with subsequent onset of dementia? A matched retrospective case-control study.

Hoile R[1,2], Tabet N[3], Smith H[4], Bremner S[1], Cassell J[1], Ford E[1].

Objective: There is evidence from neuroimaging studies of an association between insomnia and early dementia biomarkers, but observational studies have so far failed to show a clear association between insomnia and the later development of dementia. We investigated the association between dementia diagnosis and recording of insomnia symptoms 5-10 years earlier in primary care.

Method: A case-control study using data from the Clinical Practice Research Datalink. 15,209 cases with dementia (either Alzheimer's, vascular, mixed or non-specific subtypes) at least 65 years old at time of diagnosis, were matched with the same number of controls on year of birth and gender. We ascertained the presence of insomnia symptoms during a five-year period starting 10 years before the index date. Odds ratios for developing dementia were estimated using logistic regression after controlling for hypnotic exposure and physical and mental health comorbidities.

Results: The adjusted odds ratio for dementia in those with previous insomnia was 1.34 (95% CI = 1.20-1.50).

Conclusion: There is an association between dementia and previous insomnia. It may be possible to incorporate insomnia into predictive tools for dementia.

14. HEADACHES

Migraines primary symptoms

Headache. 2019 Dec 14. doi: 10.1111/head.13708.

Most Bothersome Symptom in Persons With Migraine: Results From the Migraine in America Symptoms and Treatment (MAST) Study.

Munjal S[1], Singh P[1], Reed ML[2], Fanning K[2], Schwedt TJ[3], Dodick DW[3], Buse DC[4], Lipton RB[4].

OBJECTIVES:
The objectives of this study were to determine the rates of nausea, phonophobia, and photophobia reported overall and as the most bothersome symptom (MBS) in individuals with migraine and to identify individual characteristics associated with each of the 3 candidate MBSs.

BACKGROUND:
The MBS has emerged as an important coprimary efficacy endpoint in clinical trials of acute treatments for migraine, as recommended by the Food and Drug Administration. The current understanding of how persons with migraine designate an associated symptom as the most bothersome has been assessed primarily in the context of randomized trials.

METHODS:
Respondents (n = 95,821) in the cross-sectional, observational Migraine in America Symptoms and Treatment (MAST) study were adults (aged ≥18 years) recruited from a US nationwide online research panel. A validated diagnostic screener identified 15,133 individuals who met modified International Classification of Headache Disorders (ICHD)-3 beta criteria for migraine and reported at least 1 monthly headache day (MHD) over the previous 3 months. The survey ascertained sociodemographic variables, headache-related disability, MHDs, cutaneous allodynia, medication overuse, a migraine symptom severity score, pain interference, noncephalic pain, anxiety and depression symptoms, visual aura over the previous year, and acute treatment optimization. The current analysis is based on respondents who also completed a 6-month follow-up assessment that included questions about their most bothersome headache symptom.

RESULTS:
A total of 7518 respondents completed the 6-month follow-up, and 6045 met inclusion criteria and were included in the analysis. The mean age of respondents was 47 (SD 13.4) years, 76.0% (4596/6045) were women, and 84.8% (5103/6017) were white. Among all respondents, 64.9% reported all 3 migraine symptoms. The MBS was photophobia in 49.1% (2967/6045), nausea in 28.1% (1697/6045), and phonophobia in 22.8% (1381/6045). Respondents reporting photophobia as the MBS were more likely to be men, to be obese, and to report visual aura. Those reporting nausea as the MBS were more likely to be women, to have lower incomes, and to report lower levels of treatment optimization. Respondents reporting phonophobia as the MBS were more likely to have cutaneous allodynia and less likely to have visual aura.

CONCLUSION:
Most people with migraine in the MAST observational study reported all 3 cardinal symptoms of nausea, photophobia, and phonophobia. As in clinical trials, the most common MBS was photophobia. Patient profiles differed among the groups defined by their MBS.

Aspirin helps migraines

Am J Med. 2019 Nov 9. pii: S0002-9343(19)30966-0. doi: 10.1016/j.amjmed.2019.10.023.

Aspirin in the Treatment and Prevention of Migraine Headaches: Possible Additional Clinical Options for Primary Healthcare Providers.

Biglione B[1], Gitin A[2], Gorelick PB[3], Hennekens C[4].

Migraine headaches are among the most common and potentially debilitating disorders encountered by primary healthcare providers. In the treatment of acute migraine and the prevention of recurrent attacks, there are prescription drugs of proven benefit. However, for those without health insurance or high co-pays, these drugs may be neither available nor affordable and, for all patients, they may be either poorly tolerated or contraindicated. The totality of evidence, which includes data from randomized trials, suggests that high-dose aspirin, in doses from 900 to 1300 mg, taken at the onset of symptoms, is an effective and safe treatment option for acute migraine headaches. In addition, the totality of evidence, including some, but not all, randomized trials, suggests the possibility that daily aspirin, in doses from 81 to 325 mg, may be an effective and safe treatment option for the prevention of recurrent migraine headaches. The relatively favorable side effect profile of aspirin and extremely low costs compared with other prescription drug therapies may provide additional options for primary healthcare providers in the treatment of both acute and recurrent migraine headaches.

Migraines and smaller thalamic nucleus

Alterations of individual thalamic nuclei volumes in patients with migraine
The Journal of Headache and Pain — Shin KJ, et al. | December 13, 2019

In this study performed on 35 patients with migraine without aura and 40 healthy controls, researchers focused on the changes of thalamic nuclei volumes and the intrinsic thalamic network in patients suffering from migraine. They performed three-dimensional T1-weighted imaging on all participants. They used the FreeSurfer program to segment thalamic nuclei. Among patients with migraine vs healthy controls, they found no difference in right and left thalamic volumes as a whole. However, patients with migraine vs healthy controls demonstrated significantly raised right anteroventral and right and left medial geniculate nuclei volumes and reduced right and left parafascicular nuclei volumes. The groups did not differ in terms of network measures of the intrinsic thalamic network.

Overall, patients suffering from migraine exhibited significant changes of thalamic nuclei volumes than healthy controls. These data might add to the underlying pathogenesis of the migraine.

22 B. SHOULDER INSTABILITY

Hockey players

Epidemiology of shoulder instability injuries in collision collegiate sports from 2009 to 2014
Arthroscopy — Trojan JD, et al. | December 20, 2019

Experts purposed this study to describe the types, mechanisms, and severity of shoulder instability injuries in collegiate collision athletes during the 2009-2010 through 2013-2014 academic years using the National Collegiate Athletic Association Injury Surveillance Program in order to contrast the injury incidence among males collision sports and their females non-collision counterparts, when possible and to compare injury outcomes between divisions I, II, and III.

A total of 445 shoulder instability injuries occurred in 1,421,561 AEs from 2009-2010 to 2013-2014. It was shown that anterior subluxation and dislocation estimated for 52.1% of all shoulder instability injuries. Moreover, injured athletes missed 8 days on average, and approximately 30% of injuries needed surgery.

Between divisions I, II, and III, surgery rates and time loss were significantly distinctive. Furthermore, women athletes playing non-collision ice hockey and lacrosse encountered significantly lower shoulder instability rates in comparison with their male counterparts.

32 A. KNEE/ACL

Additional injury after return to play potential

Arthroscopy. 2019 Aug 19. pii: S0749-8063(19)30500-6. doi: 10.1016/j.arthro.2019.05.052

High Risk of Further ACL Injury in a 10-Year Follow-up Study of ACL-Reconstructed Soccer Players in the Swedish National Knee Ligament Registry.

Sandon A[1], Engström B[2], Forssblad M[2].

PURPOSE:
To follow up on soccer players 10 years after a primary anterior cruciate ligament (ACL) reconstruction to find out how many players returned to play soccer, what influenced their decision, and if there are any differences in additional ACL injuries (graft failure and/or contralateral ACL injury) between those who returned to play and those who did not.

METHODS:
The study cohort consists of 1661 soccer players from the Swedish National Knee Ligament Registry. A questionnaire was sent to each player regarding their return to play and additional knee injuries that may have occurred 10 years after their primary ACL. The results are based on the 684 responders. Data such as age, sex, surgical procedural data, associated injuries, patient-reported outcome measures, and additional knee surgeries were collected from the registry.

RESULTS:
In this study, 51% returned to play soccer. For those who did not return to play, the primary reason was knee related (65.4% of the cases). The most common knee-related reasons for not returning were pain and/or instability (50%; n = 109), followed by fear of reinjury (32%; n = 69). Players who return to soccer have a significantly higher risk of additional ACL injury. Of the players who returned to play soccer, 28.7% (odds ratio [OR] 2.3, P < .001) had additional ACL injury, 9.7% (OR 2.9, P < .001) had a graft failure and 20.6% (OR 2.1, P < .001) had a contralateral ACL injury.

CONCLUSIONS:
Players that return to soccer have a significantly higher risk of sustaining further ACL injury. Only half of the soccer players return to play after ACL reconstruction, and in two-thirds of those who did not return, the reason was knee related. The high risk of sustaining additional knee injury is of serious concern to the player's future knee health and should be considered when deciding on a return to play.

Exercise and knee valgus

Arthroscopy: The Journal of Arthroscopic & Related Surgery
Volume 36, Issue 1, January 2020, Pages 214-222.e2

Original Article

Fatigue Increases Dynamic Knee Valgus in Youth Athletes: Results From a Field-Based Drop-Jump Test

Author links open overlay panelMohsin S.FidaiM.D.[a]Kelechi R.OkorohaM.D.[b]JasonMeldauB.S.[a]FabienMetaM.D.[a]Vincent A.LizzioM.D.[a]PeterBorowskyB.S.[a]Lauren H.RedlerM.D.[c]VasiliosMoutzourosM.D.[a]Eric C.MakhniM.D., M.B.A.[a]

https://doi.org/10.1016/j.arthro.2019.07.018Get rights and content

Purpose

To determine whether fatigue increases dynamic knee valgus in adolescent athletes, as measured after a standardized exercise protocol and video-based drop-jump test. A secondary aim was to determine whether individual risk factors place certain athletes at increased risk for dynamic knee valgus.

Methods

Athletes aged 14 to 18 years were recruited for this video analysis study. Athletes were recorded performing a standard drop-jump to assess dynamic valgus. Participants then completed a standardized exercise protocol. Fatigue was quantified using a maximum vertical jump, which was compared with pre-exercise values. The drop-jump was repeated postexercise. All drop-jump recordings were randomized and scored for dynamic valgus by 11 blinded reviewers. Univariate analysis was performed to identify characteristics that predisposed athletes to increased dynamic valgus.

Results

Eighty-five (47 female, 38 male) athletes with an average age of 15.4 years were included in this study. Forty-nine percent of athletes demonstrated an increase in dynamic valgus determined by drop-jump assessment after exercise. A significantly greater percentage of athletes were graded "medium or high risk" in jumps recorded after the exercise protocol (68%) as compared with before the exercise protocol (44%; $P < .01$). Female athletes ($P < .01$) and those older than 15 years of age ($P < .01$) were the most affected by fatigue.

Conclusions

In conclusion, our study found that exercise increases dynamic knee valgus in youth athletes. Female athletes and those older than 15 years of age were most significantly affected by exercise. Greater fatigue levels were found to correlate with an increase in dynamic knee valgus, which may place athletes at greater anterior cruciate ligament injury risk. The field-based exercise drop-jump test is a low-cost and reproducible screening tool to identify at-risk athletes who could possibly benefit from anterior cruciate ligament injury-prevention strategies.

33. MENISCUS

Surgical results

Arthroscopy. 2019 Dec 4. pii: S0749-8063(19)31165-X. doi: 10.1016/j.arthro.2019.11.124

Meniscus Repair Does not Result in an Inferior Short-term Outcome Compared with Meniscus Resection. An Analysis of 5,378 Patients with Primary Anterior Cruciate Ligament Reconstruction.

Cristiani R[1], Parling A[2], Forssblad M[3], Edman G[3], EngstrÖm B[4], Stålman A[4].

PURPOSE:
To compare the preoperative and 1- and 2-year postoperative Knee injury and Osteoarthritis Outcome Score (KOOS) subscale scores between isolated anterior cruciate ligament reconstruction (ACLR) and ACLR with additional medial meniscus (MM) and/or lateral meniscus (LM) resection or repair.

METHODS:
A total of 5,378 patients who underwent primary ACLR, with no associated ligament injuries, at our institution from January 2005 to December 2015, were included. The KOOS subscale scores were used to evaluate patients preoperatively and at 1- and 2-year postoperative follow-ups. Patients with isolated ACLR and ACLR with additional MM resection, MM repair, LM resection, LM repair, MM + LM resection, or MM + LM repair were compared using an analysis of covariance (ANCOVA), with age, gender, graft and cartilage injury as covariates.

RESULTS:
Postoperatively, at both 1- and 2-year follow-ups, no significant differences were found between the groups for any of the 5 KOOS subscales. Preoperatively, a significant difference between the groups was found for the Symptoms (P <.001), Pain (P <.001), Activities of Daily Living [ADL] (P <.001) and Sport and Recreation [Sport/Rec] (P =.01) KOOS subscale scores. The lowest scores were found for the ACLR + MM + LM repair group (Symptoms: 70.1 ± 17.3; Pain: 71.4 ± 18.5; ADL: 80.6 ± 20.5; Sport/Rec: 35.7 ± 28.1), while the mean scores for the other groups ranged as follows: Symptoms (from 71.2 ± 18.7 to 76.5 ± 17.1); Pain (from 76.1 ± 17.0 to 80.1 ± 15.5); ADL (from 84.5 ± 16.8 to 88.1 ± 14.2); Sport/Rec (from 44.2 ± 28.3 to 49.1 ± 28.5).

CONCLUSIONS:
Patients undergoing isolated ACLR and ACLR with additional MM and/or LM resection or repair obtain equivalent results for any of the KOOS subscales at 1- and 2-year postoperative follow-ups. Differences between the groups are only detectable preoperatively, with patients undergoing ACLR + MM + LM repair showing the lowest scores for the Symptoms, Pain, ADL and Sport/Rec KOOS subscale

43. HALLUX VALGUS

Secondary to S 1 nerve root

J Bodyw Mov Ther. 2019 Jul;23(3):448-451. doi: 10.1016/j.jbmt.2019.05.003. Epub 2019 May 8.

Neurogenic hallux valgus. A rare complication of spinal surgery.

Sferopoulos NK[1].

Abstract

INTRODUCTION:

Post-surgical lumbar spine syndrome is the result of failed or unsuccessful back surgery. It is defined as failure to relieve pain and disability in the lower back and extremities following surgery. This case report suggests inclusion of neurogenic hallux valgus to the list of potential complications following failed lumbar spine surgery.

CASE REPORT:

A severe unilateral hallux valgus deformity with an irreducible dislocation of the metatarsophalangeal joint due to complete wasting of the abductor hallucis muscle was diagnosed in a 73-year-old woman admitted for a hip fracture. The patient reported that the deformity developed after a failed lumbar spine surgery, which included decompression and stabilization of L2-S1 with posterior instrumentation 6 years previously. The deformity progressively deteriorated over a 3-year-period. Three months following the hip fracture surgery, the patient went through a neurological examination and an electrophysiological study. The findings indicated that the left hallux valgus deformity most likely developed because of the abductor hallucis muscle wasting due to S1 nerve root injury secondary to the failed lumbar spine surgery.

CONCLUSION:

Post-surgical lumbar spine syndrome may be a reasonable causative etiology of a severe unilateral hallux valgus deformity with an irreducible dislocation of the metatarsophalangeal joint due to complete wasting of the abductor hallucis muscle secondary to S1 nerve root injury.

45 A. MANUAL THERAPY LUMBAR & GENERAL

Impact on muscle function

J Man Manip Ther. 2013 Feb; 21(1): 7–17. doi: 10.1179/2042618612Y.0000000016
PMCID: PMC3578190 PMID: 24421608

The relative effectiveness of segment specific level and non-specific level spinal joint mobilization on pain and range of motion: results of a systematic review and meta-analysis

Emily Joan Slaven, Adam P Goode, Rogelio A Coronado, Charles Poole, and Eric J Hegedus

Highlights

- Moderate to very low quality evidence was found for the effect of mobilisation.
- Mobilisation can immediately decrease the activation of superficial muscles at low load.
- Specific mechanisms of action involved remain speculative.
- Not pain-related mechanisms may play an important role.

Study design: Systematic literature review and meta-analysis.

Objective: In symptomatic subjects to: (1) examine the effects of a single session of joint mobilization on pain at rest and with most painful movement, and (2) compare the effects when joint mobilization is provided to a specific or non-specific spinal level.

Background: Joint mobilization is routinely used for treating spinal pain in conjunction with other interventions, but its unique effect is not well understood. Further, there is controversy about the role of 'specific level' techniques in producing benefit.

Methods: Searches were performed for randomized controlled trials (RCTs) using electronic databases (MEDLINE, CINAHL, and PEDro) from 1966 through November 2010. Methodological quality was assessed using previously detailed criteria. Meta-analysis and meta-regression were conducted on eligible studies.

Results:

Eight RCTs with a mean methodological score of 10/12 were included. Significant heterogeneity (P=0.075) was found in the overall meta-analysis estimate. When stratified by body location, no significant individual effect was found for pain at rest. However, there was a statistical mean difference [0.71 (95% confidence interval: 0.13–1.28)] between pain at rest for the cervical and lumbar individual means.

Conclusions:

We found multiple studies which provided evidence that a single session of joint mobilization can lead to a reduction of pain at rest and with most painful movement. When using joint mobilization, the need for specific versus non-specific level mobilization may be influenced by anatomical region; the direction of effect in the cervical spine was toward specific mobilization and in the lumbar spine towards non-specific mobilization.

50 A. MOTOR CONTROL

Movement coordination

Assessment of movement coordination strategies to inform health of movement and guide retraining interventions

lSarahMottram[abc]LincolnBlandford[cd]

https://doi.org/10.1016/j.msksp.2019.102100Get rights and content

Highlights

• Changes in movement coordination strategies are altered in clinical groups.
•Cognitive movement control tests identify changes in movement coordination strategies.
• Loss of movement choices may be relevant for clinical presentations.
• Retraining aims to restore choice in movement to support long term movement health.

Abstract

Introduction

Exploring characteristics of human movement has long been the focus of clinicians and researchers. Changes in movement coordination strategies have been identified in the presence of pain highlighting the need for assessment in clinical practice. A major development in the understanding of movement related disorders is recognition of individual differences in presentation and consequently the need to tailor interventions based on assessment.

Purpose

The purpose of this masterclass is to build a rationale for the clinical assessment of movement coordination strategies, exploring loss of movement choices, coordination variability, and to present a clinical framework for individualised management, including the use of cognitive movement control tests and retraining interventions. An approach for the qualitative rating of movement coordination strategies is presented. A compromised movement system may be one characterised by a lack of ability to access motor abundance and display choice in the use of movement coordination strategies. The identification of lost movement choices revealed during the assessment of movement coordination strategies is proposed as a marker of movement health.

Implications for practice

The health of the movement system may be informed by the ability to display choice in movement coordination strategies. There is evidence that restoring these choices has clinical utility and an influence on pain and improved function. This approach seeks to provide individuals with more flexible problem solving, enabled through a movement system that is robust to each unique challenge of function. This assessment framework sits within a bigger clinical reasoning picture for sustained quality of life.

56. ATHLETICS

Return to play after hip arthroscopic in soccer players

Return to Play in Amateur Soccer Players Undergoing Hip Arthroscopy: Short- to Mid-Term Follow-Up

Victor Ortiz-Declet, M.D.[c] Leslie C. Yuen, B.A.[d] Garrett R. Schwarzman, M.D.[b] Austin W. Chen, M.D.[e]
Itay Perets, M.D.[f] Benjamin G. Domb, M.D.[a,b,*,]
DOI: https://doi.org/10.1016/j.arthro.2019.08.027

Purpose

To describe patient-reported outcomes (PROs) and return to play at any level in amateur soccer players undergoing hip arthroscopy for femoroacetabular impingement syndrome at short- to mid-term follow-up.

Methods

Data were prospectively collected and retrospectively reviewed for patients who underwent hip arthroscopy between March 2009 and June 2014. Patients who participated in amateur soccer within 1 year prior to surgery and intended to return to their sport after hip arthroscopy for femoroacetabular impingement syndrome were considered for inclusion in our study. Patients were excluded if they had a preoperative Tönnis osteoarthritis grade of 2 or greater, previous ipsilateral hip conditions or hip surgical procedures, or Workers' Compensation status. The patients from the initial group who had preoperative and minimum 2-year postoperative measures for the modified Harris Hip Score, Non-Arthritic Hip Score, Hip Outcome Score–Sports Specific Subscale, and visual analog scale for pain were included in our final group. In addition to PROs, data regarding the patients' return to soccer, surgical complications, and secondary surgical procedures were collected.

Results

A total of 41 patients were eligible for inclusion in our study, of whom 34 (82.9%) had a mean follow-up period of 47.4 months. Five patients were not eligible because they did not intend to return to soccer. There were 15 male hips (44.1%) and 19 female hips (55.9%). The mean age at surgery was 20.8 ± 7.4 years. All PROs and the visual analog scale score improved significantly from preoperatively to latest follow-up. Of the 34 patients, 27 (79.4%) returned to soccer. Of the patients who returned to soccer, 19 (70.4%) were competing at the same level or a higher level compared with their highest level within 1 year of surgery. Regardless of competitive level, 21 patients (77.8%) reported that their athletic ability was the same as or higher than it was within 1 year of surgery.

Conclusions

Hip arthroscopy was associated with significant improvements in PROs for amateur soccer players. There was a high level of return to soccer and a high proportion of patients whose competitive level was similar or improved. As such, hip arthroscopy is a good option for soccer players, in the absence of underlying osteoarthritis, presenting with hip pathology.

Good return to play after hip arthroscopic surgery

Performance and Return to Sport After Hip Arthroscopy in the National Basketball Association

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https://doi.org/10.1016/j.arthro.2019.09.013Get rights and content

Purpose

To determine: (1) return to sport (RTS) rate in National Basketball Association (NBA) players following hip arthroscopy, (2) postoperative career length and games per season, (3) pre- and postoperative performance, and (4) postoperative performance compared with control players.

Methods

NBA athletes who underwent hip arthroscopy and matched controls were identified. RTS was defined as playing in at least 1 game after surgery. Player efficiency ratings were used for performance evaluation. Continuous variables of each group were compared using a 2-tailed paired samples Student *t* test for normally distributed data. χ^2 was used to analyze categorical data. RTS was used as the primary outcome with statistical significance defined by a *P* value < .05. A Bonferroni correction was used to control for the remaining multiple comparisons with statistical significance defined by a *P* value ≤.008.

Results

Twenty-three players (24 hips) were analyzed (mean age 27.5 ± 3.1 years; mean experience in the NBA 5.8 ± 2.8 years at time of surgery). Small forwards (n = 8, 33.3%) represented the largest proportion of players that underwent hip arthroscopy. Twenty players (21 surgeries, 87.5%) were able to RTS in NBA at an average of 5.7 ± 2.6 months. The overall 1-year NBA career survival rate of players undergoing hip arthroscopy was 79.2%. Players in the control group (5.2 ± 3.5 years) had a similar career length as (*P* = .068) players who underwent surgery (4.4 ± 3.0 years). There was no significant (*P* = .045) decrease in games per season following surgery. There was no significant difference in performance postoperatively compared with preoperatively (*P* = .017) and compared with matched controls following surgery (*P* = .570).

Conclusions

The RTS rate for NBA athletes after hip arthroscopy is high. There was no decrease in games played, career lengths, or performance following hip arthroscopy in NBA players versus preoperatively and matched controls.

Breath control improves sprint time

July 2019 Volume 23, Issue 3, Pages 452–455
Inspiratory muscle training improves performance of a repeated sprints ability test in professional soccer players

Rodrigo Luis Cavalcante Silva[a] Elliott Hall[b] Alex Souto Maior[a]

DOI: https://doi.org/10.1016/j.jbmt.2019.01.016
Background
Inspiratory muscle training (IMT) is an important method of attenuating both respiratory and peripheral effort perceptions, consequently improving neuromuscular performance and resulting in greater improvements in exercise capacity than exercise training alone.

Objective
The aim of this study was to investigate the effects of IMT on exercise tolerance, repeated sprint ability (RSA) performance, maximal inspiratory pressure (MIP), and peak inspiratory flow (PIF) in a cohort of professional male soccer players.

Methods
Twenty-two healthy male professional soccer players (18.3 ± 1.4 years; 174.5 ± 6.1 cm; 70.5 kg ± 4.6 kg; body fat 10.1 ± 4.2%) from a club in the Brazilian first division soccer league participated in this study. IMT consisted of 15 and 30 self-paced inspiratory breaths (each to 50% maximal static inspiratory pressure [P_0]) in the 1-and 2-week intervention period, respectively. IMT was performed prior to soccer training (1 sets.d^{-1}; 6 d.wk^{-1}) with repeated sprint ability (RSA) assessed pre- and post- the 2-week period of IMT.

Results
Statistical analyses identified a significant ($p < 0.001$) decrease in sprint time post-IMT. Additionally, RSA_{best}, RSA_{mean}, total sprint time and percentage of RSA performance decrement ($RSA_{\%\ dec}$) also showed significant decreases ($p < 0.0001$) post-IMT. Additional measures including MIP and PIF were also significantly elevated ($p < 0.0002$) following the 2-week period of IMT.

Conclusion
In conclusion, our results raise two important issues. Firstly, IMT demonstrated enhanced inspiratory muscle strength in professional soccer players. Secondly, this increase in inspiratory muscle efficiency led to a decrease in sprint time and improved exercise tolerance. We recommend that a standard training protocol be developed and tested in an experimental and control group with a large representative sample.

Fastballs torque on elbow

Journal of Shoulder and Elbow Surgery

Predictors of elbow torque among professional baseball pitchers

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https://doi.org/10.1016/j.jse.2019.07.037Get rights and content

Background

Overuse injuries of the shoulder and elbow continue to be prevalent in elite baseball pitchers. Pitch velocity has been shown to impact medial elbow torque in adolescent baseball pitchers. However, the determinants of medial elbow torque in professional baseball pitchers are not known.

Purpose

To determine the influence of pitch type, velocity, and player characteristics on medial elbow torque in professional baseball pitchers.

Methods

Professional baseball pitchers were recruited for participation. Height, weight, body mass index (BMI), and throwing arm measurements were obtained for all study participants. While wearing a gyroscopic sensor equipped with an accelerometer, participants were instructed to throw a standard, randomized sequence of fastballs, changeups, and curveballs. Elbow torque, arm slot, arm speed, shoulder rotation, and ball velocity were recorded for each pitch. A linear mixed model was used to evaluate the association of pitch type with each pitch parameter, adjusting for pitchers' demographics.

Results

A total of 12 professional baseball pitchers were included in this study. Among the pitch types, medial elbow torque was significantly higher in fastballs than in curveballs ($P = .001$). An increased BMI value was independently associated with decreased elbow torque in pitchers ($P = .035$).

Conclusion

Fastballs place significantly higher torque on the medial elbow than do curveballs, which is consistent with previous studies done on high school and collegiate populations. Pitchers with a higher BMI experience significantly less torque across the medial elbow.

59. PAIN

Pain changes

Are within and/or between session improvements in pain and function prognostic of medium and long-term improvements in musculoskeletal problems? A systematic review

Nils Runge[a,c,*], Alessandro Aina[b], Stephen May[c]
DOI: https://doi.org/10.1016/j.msksp.2019.102102

Highlights

- •Within and between session changes are thought to be good prognostic factors.
- •This systematic review identified 13 studies that investigated this association.
- •The evidence for changes in pain location as a prognostic factor was inconclusive.
- •No evidence for within session changes in pain intensity as prognostic factor.
- •Very limited evidence for prognostic value of between-session changes on disability.

Abstract

Background

Initial or between session improvements in pain and/or function are often considered to be predictive of ultimate outcomes in musculoskeletal problems.

Objective

To determine the long-term prognostic value of within and between session improvements to pain and function.

Design

Systematic review of relevant literature.

Method

A search was made of multiple databases (Pubmed/Medline, Cochrane, Cinahl, and AMed) using relevant search terms. Titles, abstracts, and then full texts were filtered to find articles that met the strict inclusion/exclusion criteria. Searching, data extraction, and quality assessment, using GRADE, were done independently by two authors. Disagreements were resolved by consensus.

Results

Only 13 articles met the criteria for inclusion. For the effect of pain location or pain intensity changes in the first treatment session on medium or long-term pain, disability, return-to-work, or global outcomes nine outcomes were available. Findings were mostly inconclusive (5) or negative (3). There was only one study evaluating between session improvements with ambiguous results. There were no studies evaluating the prognostic value of early improvements in function.

Conclusions

There is no conclusive evidence to support the concept that early changes in pain location or pain intensity offer a good longer-term prognosis on a variety of outcomes; and no evidence relating to early improvements in function. The idea that patients who appear to improve in the first treatment session will do well longer term is not supported by the literature.

62 A. NUTRITION/VITAMINS

Selenium reduces Osteoporosis

Association between dietary selenium intake and the prevalence of osteoporosis: A cross-sectional study

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In the general middle-aged and older population (n = 6,267; mean age was 52.2 ± 7.4 years) in China, researchers used multivariable logistic regression to explore the relationship between dietary selenium (Se) intake and the prevalence of osteoporosis (OP).

This investigation was conducted at the Xiangya Hospital Health Management Centre. Using a validated semi-quantitative food frequency questionnaire, dietary Se intake was assessed. Data reported that OP prevalence among the included individuals was 9.6% (2.3% in men and 19.7% in women). Adjustment for additional potential confounders (ie, smoking status, drinking status, physical activity level, nutritional supplements, diabetes, hypertension, fibre intake, and calcium intake) did not result in significant changes to the findings.

The authors discovered that candidates with lower levels of dietary Se intake have a higher prevalence of OP in a dose-response manner in the middle-aged and older humans.

63. PHARMACOLOGY

Opioid use prior to surgery increases risks

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Preoperative Long-Acting Opioid Use Is Associated with Increased Length of Stay and Readmission Rates After Elective Surgeries.

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Objectives To compare postoperative outcomes in patients prescribed long-acting opioids vs opioid-naïve patients who underwent elective noncardiac surgeries. Design Retrospective cohort study. Setting Single urban academic institution.

Methods and Subjects We retrospectively compared postoperative outcomes in long-acting opioid users vs opioid-naïve patients who underwent elective noncardiac surgeries. Inpatient and ambulatory surgery cohorts were separately analyzed. Preoperative medication lists were queried for the presence of long-acting opioids or absence of opioids. Multivariable logistic regression was performed to analyze the impact of long-acting opioid use on readmission rate, respiratory failure, and adverse cardiac events. Multivariable zero-truncated negative binomial regression was used to examine length of stay.

Results After exclusions, there were 93,644 adult patients in the study population, 23,605 of whom underwent inpatient surgeries and 70,039 of whom underwent ambulatory surgeries. After adjusting for potential confounders and inpatient surgeries, preoperative long-acting opioid use was associated with increased risk of prolonged length of stay (incidence rate ratio = 1.1, 99% confidence interval [CI] = 1.0-1.2, $P < 0.01$) but not readmission. For ambulatory surgeries, preoperative long-acting opioid use was associated with increased risk of all-cause as well as pain-related readmission (odds ratio [OR] = 2.1, 99% CI = 1.5-2.9, $P < 0.001$; OR = 2.0, 99% CI = 0.85-4.2, $P = 0.02$, respectively). There were no significant differences for respiratory failure or adverse cardiac events.

Conclusions The use of preoperative long-acting opioids was associated with prolonged length of stay for inpatient surgeries and increased risk of all-cause and pain-related readmission for ambulatory surgeries. Timely interventions for patients on preoperative long-acting opioids may be needed to improve these outcomes.