

2. LBP

Dextrose injections helps LBP

Eur Spine J. 2019 May 21. doi: 10.1007/s00586-019-06011-3.

Dextrose injections for failed back surgery syndrome: a consecutive case series.

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PURPOSE:

Patients with chronic low back pain, who do not respond to conservative treatment methods, generally undergo surgical revision operations, and sometimes an undesirable condition called failed back surgery syndrome (FBSS) may be inevitable. Hereby, dextrose is one of the regenerative methods that has gained popularity in the treatment of many musculoskeletal problems, and we aimed to present and evaluate the outcomes of 5% dextrose for the treatment of FBSS.

METHODS:

It has been designed as a consecutive case series. A total of 79 patients with FBSS, who had minimum 6 months of symptoms and did not respond to 3 months of conservative methods between May 2014 and March 2016, participated in the study. Prolotherapy injections were applied in posterior and lateral approaches. Visual Analog Scale (VAS) and Oswestry Disability Index (ODI) were used for the pre- and post-treatment evaluations. Patient satisfaction was assessed with using a 5-point Likert scale by phone contacting.

RESULTS:

There was statistically significant difference between repeated VAS and ODI measurements.

CONCLUSIONS:

These results may be the first step giving a lead to an undiscovered field. This treatment method should be kept in mind for FBSS patients before giving a decision of revision surgery. These slides can be retrieved under Electronic Supplementary Material.

Centralization predictions

J Man Manip Ther. 2019 May;27(2):66-72. doi: 10.1080/10669817.2018.1542560. Epub 2018 Nov 5.

Initial pain and disability characteristics can assist the prediction of the centralization phenomenon on initial assessment of patients with low back pain.

Rabin A¹, Shmushkevich Y², Kalichman L³.

OBJECTIVES:

Determine whether the achievement of the centralization phenomenon on initial assessment of patients with low back pain (LBP) can be predicted by history and physical examination variables.

METHODS:

Ninety patients referred to physical therapy due to LBP completed pain, disability, and fear-avoidance questionnaires, followed by a complete history and a physical examination based on mechanical diagnosis and therapy principles. Patients were subsequently classified as centralizers or noncentralizers. Univariate, followed by multivariate analysis was performed to identify history and physical examination variables that predicted the occurrence of the CP. Factors retained in the multivariate analysis were used to develop a clinical prediction rule (CPR).

RESULTS:

Twenty-eight patients (31%) were classified as centralizers immediately following assessment. Three predictors were retained in the multivariate analysis: (1) modified Oswestry Disability Index score lower than 33%; (2) intensity of the most distal symptom lower than 6/10; and (3) back pain equal to or greater than leg pain. The resultant CPR indicated the presence of all three variables increased the post-test likelihood of the CP to 57%.

DISCUSSION:

The findings of this study suggest the CP may be considerably more likely in less severe cases of LBP characterized by lower disability, lower intensity of distal symptoms, and a greater back-versus-leg pain intensity. Pending future validation, the CPR developed in this study may aid decision making regarding the initial management strategy of patients with LBP.

Mindfulness exercise (Tai Chi) helps LBP

J Clin Med. 2019 May 8;8(5). pii: E628. doi: 10.3390/jcm8050628.

Are Mindful Exercises Safe and Beneficial for Treating Chronic Lower Back Pain? A Systematic Review and Meta-Analysis of Randomized Controlled Trials.

Zou L¹, Zhang Y², Yang L^{3,4}, Loprinzi PD⁵, Yeung AS⁶, Kong J⁷, Chen KW⁸, Song W^{9,10}, Xiao T¹¹, Li H^{12,13}.

BACKGROUND:

Chronic low back pain (CLBP) is a common health issue worldwide. Tai Chi, Qigong, and Yoga, as the most widely practiced mindful exercises, have promising effects for CLBP-specific symptoms.

OBJECTIVE:

We therefore conducted a comprehensive review investigating the effects of mindful exercises versus active and/or non-active controls while evaluating the safety and pain-related effects of mindful exercises in adults with CLBP.

METHODS:

We searched five databases (MEDLINE, EMBASE, SCOPUS, Web of Science, and Cochrane Library) from inception to February 2019. Two investigators independently selected 17 eligible randomized controlled trials (RCT) against inclusion and exclusion criteria, followed by data extraction and study quality assessment. Standardized mean difference (SMD) was used to determine the magnitude of mindful exercises versus controls on pain- and disease-specific outcome measures.

RESULTS:

As compared to control groups, we observed significantly favorable effects of mindful exercises on reducing pain intensity ($SMD = -0.37$, 95% CI -0.5 to -0.23, $p < 0.001$, $I^2 = 45.9\%$) and disability ($SMD = -0.39$, 95% CI -0.49 to -0.28, $p < 0.001$, $I^2 = 0\%$). When compared with active control alone, mindful exercises showed significantly reduced pain intensity ($SMD = -0.40$, $p < 0.001$). Furthermore, of the three mindful exercises, Tai Chi has a significantly superior effect on pain management ($SMD = -0.75$, 95% CI -1.05 to -0.46, $p < 0.001$), whereas Yoga-related adverse events were reported in five studies.

CONCLUSION:

Findings of our systematic review suggest that mindful exercises (Tai Chi and Qigong) may be beneficial for CLBP symptomatic management. In particular, Tai Chi appears to have a superior effect in reducing pain intensity irrespective of non-control comparison or active control comparison (conventional exercises, core training, and physical therapy programs). Importantly, training in these mindful exercises should be implemented with certified instructors to ensure quality of movement and injury prevention.

Can biomechanics explain LBP

J Orthop Sports Phys Ther. 2019 May 15:1-32. doi: 10.2519/jospt.2019.8825.

Can Biomechanics Research Lead to More Effective Treatment of Low Back Pain? A Viewpoint-Counterpoint Debate.

Cholewicki J^{1,2}, Breen A³, Popovich JM Jr^{1,2}, Reeves NP^{1,2,4}, Sahrman SA⁵, van Dillen LR⁶, Vleeming A^{7,8}, Hodges PW⁹.

Although biomechanics play a role in the development of low back pain (LBP), and perhaps in the persistent and/or recurrent nature of LBP, there is debate regarding whether biomechanics alone can provide the basis for intervention. Biomechanics, which refers to the mechanics of the body including its neuromuscular control, has been extensively studied in LBP. But, can gains be made in understanding LBP by research focused on this component of the biology in the multifactorial bio-psycho-social problem of LBP? This commentary considers whether biomechanics research has the potential to advance treatment of LBP, and how likely it is that this research will lead to better treatment strategies for LBP. A viewpoint-counterpoint format is taken to present both sides of the argument. This is considered first from the perspective of the challenges faced by an approach that considers biomechanics in isolation. Second, 3 models are described that place substantial emphasis on biomechanical factors. Third, reactions to each viewpoint are presented as a foundation for further research and clinical practice to progress understanding of the place for biomechanics in guiding treatment for LBP. *J Orthop Sports Phys Ther, Epub 15 May 2019. doi:10.2519/jospt.2019.8825.*

4. SPINAL INJECTIONS

Ablation

European Spine Journal pp 1–9|

A prospective, open-label, single-arm, multi-center study of intraosseous basivertebral nerve ablation for the treatment of chronic low back pain

Eric Truumees Kevin Macadaeg Enrique Pena John ArbuckleII Jonathan GentileII Robert Funk Devender Singh Sheetal Vinayek

Purpose

A prospective, single-arm, open-label study to evaluate the effectiveness of intraosseous radio frequency (RF) ablation of the basivertebral nerve (BVN) for the treatment of vertebrogenic-related chronic low back pain (CLBP) in typical spine practice settings using permissive criteria for study inclusion.

Methods

Consecutive patients with CLBP of at least 6 months duration and with Modic Type 1 or 2 vertebral endplate changes between L3 and S1 were treated with RF ablation of the BVN in up to four vertebral bodies. The primary endpoint was patient-reported change in Oswestry Disability Index (ODI) from baseline to 3 months post-procedure. Secondary outcome measures included change in visual analog scale (VAS), SF-36, EQ-5D-5L, and responder rates.

Results

Median age was 45 years; baseline ODI was 48.5; VAS was 6.36. Seventy-five percent (75%) of the study patients reported LBP symptoms for ≥ 5 years; 25% were actively using opioids; and 61% were previously treated with injections. Mean change in ODI at 3 months posttreatment was $-30.07 + 14.52$ points ($p < 0.0001$); mean change in VAS was $-3.50 + 2.33$ ($p < 0.0001$). Ninety-three percent (93%) of patients achieved a ≥ 10 -point improvement in ODI, and 75% reported ≥ 20 -point improvement.

Conclusions

Minimally invasive RF ablation of the BVN demonstrated a significant improvement in pain and function in this population of real-world patients with chronic vertebrogenic-related LBP.

7. PELVIC ORGANS/WOMAN'S HEALTH

Delivery after C section

BMC Pregnancy Childbirth. 2019 May 20;19(1):176. doi: 10.1186/s12884-019-2334-3.

Success of trial of labor in women with a history of previous cesarean section for failed labor induction or labor dystocia: a retrospective cohort study.

Place K¹, Kruit H², Tekay A², Heinonen S², Rahkonen L².

BACKGROUND:

The rates of cesarean section (CS) are increasing worldwide leading to an increased risk for maternal and neonatal complications in the subsequent pregnancy and labor. Previous studies have demonstrated that successful trial of labor after cesarean (TOLAC) is associated with the least maternal morbidity, but the risks of unsuccessful TOLAC exceed the risks of scheduled repeat CS. However, prediction of successful TOLAC is difficult, and only limited data on TOLAC in women with previous failed labor induction or labor dystocia exists. Our aim was to evaluate the success of TOLAC in women with a history of failed labor induction or labor dystocia, to compare the delivery outcomes according to stage of labor at time of previous CS, and to assess the risk factors for recurrent failed labor induction or labor dystocia.

METHODS:

This retrospective cohort study of 660 women with a prior CS for failed labor induction or labor dystocia undergoing TOLAC was carried out in Helsinki University Hospital, Finland, between 2013 and 2015. Data on the study population was obtained from the hospital database and analyzed using SPSS.

RESULTS:

The rate of vaginal delivery was 72.9% and the rate of repeat CS for failed induction or labor dystocia was 17.7%. The rate of successful TOLAC was 75.6% in women with a history of labor arrest in the first stage of labor, 73.1% in women with a history of labor arrest in the second stage of labor, and 59.0% in women with previous failed induction. The adjusted risk factors for recurrent failed induction or labor dystocia were maternal height < 160 cm (OR 1.9 95% CI 1.1-3.1), no prior vaginal delivery (OR 8.3 95% CI 3.5-19.8), type 1 or gestational diabetes (OR 1.8 95% CI 1.0-3.0), IOL for suspected non-diabetic fetal macrosomia (OR 10.8 95% CI 2.1-55.9) and birthweight ≥4500 g (OR 3.3 95% CI 1.3-7.9).

CONCLUSIONS:

TOLAC is a feasible option to scheduled repeat CS in women with a history of failed induction or labor dystocia. However, women with no previous vaginal delivery, maternal height < 160 cm, diabetes or suspected neonatal macrosomia (≥4500 g) may be at increased risk for failed TOLAC.

Total hip replacement impacts fetus**Pregnancy outcome in women after total hip replacement: A population-based study**

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<https://doi.org/10.1016/j.ejogrb.2019.05.020> Get rights and content

Objective

Only a few small studies have been published on pregnancies after total hip replacement (THR), and they have reported no adverse pregnancy outcomes after THR. The aim of our study was to evaluate whether maternal THR affects pregnancy outcomes on a population-based level.

Study Design

Data for this nationwide register-based cohort study have been collected from four national registries in Finland from 1980 to 2007. All females who had undergone THR during that period formed the patient group, and three controls for each patient without THR were selected. Patient group comprised 2429 women, 719 (29.6%) of whom had 1190 pregnancies ending in singleton deliveries. Of those births, 986 were before THR and 204 after THR. The control group comprised 7276 women, 2805 (38.6%) of whom had 5112 pregnancies ending in singleton deliveries, 3695 occurred before the index date (time point when THR took place within the patient group) and 1417 after. Logistic regression model was used to analyze univariable and adjusted odds ratios (aOR) for adverse neonatal outcomes after maternal THR compared with controls. Data were adjusted using the following variables: maternal age, smoking, rheumatoid arthritis.

Results

Stillbirth was more common in the patient group compared with control group 4 (2.0%) vs 8 (0.6%) $p = 0.02$. Moreover, neonates in the patient group were more likely to be born preterm (aOR 3.58, $p < 0.001$), small for gestational age (aOR 2.83, $p = 0.006$) and low birthweight (aOR 4.79, $p < 0.001$), compared to control group. Trial of labor more likely ended in emergency cesarean section in the patient group than in the control group 39 (28.9%) vs 150 (11.6%), $p < 0.001$. Adverse pregnancy outcome was more common after THR also when compared to pregnancies before THR.

Conclusions

Neonates born after maternal total hip replacement have an increased risk of stillbirth, small for gestational age, low birthweight and preterm birth. Trial of labor is more likely to end in emergency cesarean section.

8. VISCERA

Constipation frequency

Defining constipation to estimate its prevalence in the community: results from a national survey

- Barry L. Werth Kylie A. Williams, Murray J. Fisher and Lisa G. Pont

*BMC Gastroenterology*2019**19**:75

<https://doi.org/10.1186/s12876-019-0994-0>

Background

Different definitions of constipation have been used to estimate its prevalence in the community but this creates difficulties when comparing results from various studies. This study explores the impact of different definitions on prevalence estimates in the same population and compares the performance of simple definitions with the Rome III criteria.

Methods

The prevalence of constipation in a large nationally representative sample of community-dwelling adults was estimated using five simple definitions of constipation and compared with definitions based on the Rome III criteria. The sensitivity, specificity, and positive and negative predictive values, were calculated for each definition using the Rome III criteria as the gold standards for chronic and sub-chronic constipation.

Results

Prevalence estimates for the five simple definitions ranged from 9.4 to 58.9%, while the prevalence estimates using the Rome III criteria were 24.0% (95%CI: 22.1, 25.9) for chronic constipation and 39.6% (95%CI: 37.5, 41.7) for sub-chronic constipation. None of the simple definitions were adequate compared to the Rome III criteria. Self-reported constipation over the past 12 months had the highest sensitivity (91.1%, 95%CI: 88.8, 93.4) and negative predictive value (94.5%, 95%CI: 93.1, 96.1) compared to the Rome III criteria for chronic constipation but an unacceptably low specificity (51.3%, 95%CI: 48.8, 53.8) and positive predictive value (37.1%, 95%CI: 34.4, 39.9).

Conclusions

The definition used to identify constipation within a population has a considerable impact on the prevalence estimate obtained. Simple definitions, commonly used in research, performed poorly compared with the Rome III criteria. Studies estimating population prevalence of constipation should use definitions based on the Rome criteria where possible.

Predicting IBS

Gut. 2019 Apr 27. pii: gutjnl-2019-318343. doi: 10.1136/gutjnl-2019-318343.

A blood-based prognostic biomarker in IBD.

Biasci D^{#1}, Lee JC^{#1,2}, Noor NM¹, Pombal DR^{1,2}, Hou M³, Lewis N⁴, Ahmad T⁵, Hart A^{6,7}, Parkes M¹, McKinney EF^{1,2}, Lyons PA^{1,2}, Smith KGC^{1,2}.

OBJECTIVE:

We have previously described a prognostic transcriptional signature in CD8 T cells that separates patients with IBD into two phenotypically distinct subgroups, termed IBD1 and IBD2. Here we sought to develop a blood-based test that could identify these subgroups without cell separation, and thus be suitable for clinical use in Crohn's disease (CD) and ulcerative colitis (UC).

DESIGN:

Patients with active IBD were recruited before treatment. Transcriptomic analyses were performed on purified CD8 T cells and/or whole blood. Phenotype data were collected prospectively. IBD1/IBD2 patient subgroups were identified by consensus clustering of CD8 T cell transcriptomes. In a training cohort, machine learning was used to identify groups of genes ('classifiers') whose differential expression in whole blood recreated the IBD1/IBD2 subgroups. Genes from the best classifiers were quantitative (q)PCR optimised, and further machine learning was used to identify the optimal qPCR classifier, which was locked down for further testing. Independent validation was sought in separate cohorts of patients with CD (n=66) and UC (n=57).

RESULTS:

In both validation cohorts, a 17-gene qPCR-based classifier stratified patients into two distinct subgroups. Irrespective of the underlying diagnosis, IBDhi patients (analogous to the poor prognosis IBD1 subgroup) experienced significantly more aggressive disease than IBDlo patients (analogous to IBD2), with earlier need for treatment escalation (hazard ratio=2.65 (CD), 3.12 (UC)) and more escalations over time (for multiple escalations within 18 months: sensitivity=72.7% (CD), 100% (UC); negative predictive value=90.9% (CD), 100% (UC)).

CONCLUSION:

This is the first validated prognostic biomarker that can predict prognosis in newly diagnosed patients with IBD and represents a step towards personalised therapy.

Non-celiac's gluten sensitivity

Non-Celiac Gluten/Wheat Sensitivity

People with non-celiac wheat sensitivity experience symptoms similar to those of celiac disease, which resolve when gluten is removed from the diet. However, they do not test positive for celiac disease.

Some people experience symptoms found in celiac disease, such as “foggy mind”, depression, ADHD-like behavior, abdominal pain, bloating, diarrhea, constipation, headaches, bone or joint pain, and chronic fatigue when they have gluten in their diet, yet do not test positive for celiac disease.

The terms non-celiac gluten sensitivity (NCGS) and non-celiac wheat sensitivity (NCWS) are generally used to refer to this condition, when removing gluten from the diet resolves symptoms.

Until now it was thought that people with NCGS/NCWS only experienced symptoms and did not have any intestinal damage. However, in July 2016, a team of researchers at Columbia University Medical Center, published a study confirming that wheat exposure in this group is, in fact, triggering a systemic immune reaction and accompanying intestinal cell damage.

It is estimated that the impacted population is equal to or even exceeds the number of individuals with celiac disease (the vast majority of whom remain undiagnosed).

At this point, research has not confirmed that gluten is the culprit triggering the immune reaction as is the case with celiac disease. According to head researcher of the study, Dr. Armin Alaedini, “there is some ambiguity there, which is why we are referring to it as non-celiac wheat sensitivity for now.”¹

IBS and increased mortality

Gut. 2019 May 15. pii: gutjnl-2018-317572. doi: 10.1136/gutjnl-2018-317572.

Mortality in adult-onset and elderly-onset IBD: a nationwide register-based cohort study 1964-2014.

Olén O^{1,2,3}, Askling J¹, Sachs MC¹, Neovius M¹, Smedby KE¹, Ekblom A¹, Ludvigsson JF^{4,5,6,7}.

OBJECTIVES:

To examine all-cause and cause-specific mortality in adult-onset and elderly-onset IBD and to describe time trends in mortality over the past 50 years.

DESIGN:

Swedish nationwide register-based cohort study 1964-2014, comparing mortality in 82 718 incident IBD cases (inpatient and non-primary outpatient care) with 10 times as many matched general population reference individuals (n=801 180) using multivariable Cox regression to estimate HRs. Among patients with IBD, the number of participants with elderly-onset (≥ 60 years) IBD was 17 873.

RESULTS:

During 984 330 person-years of follow-up, 15 698/82 718 (19%) of all patients with IBD died (15.9/1000 person-years) compared with 121 095/801 180 (15.1%) of reference individuals, corresponding to an HR of 1.5 for IBD (95% CI=1.5 to 1.5 (HR=1.5; 95% CI=1.5 to 1.5 in elderly-onset IBD)) or one extra death each year per 263 patients. Mortality was increased specifically for UC (HR=1.4; 95% CI=1.4 to 1.5), Crohn's disease (HR=1.6; 95% CI=1.6 to 1.7) and IBD-unclassified (HR=1.6; 95% CI=1.5 to 1.8). IBD was linked to increased rates of multiple causes of death, including cardiovascular disease (HR=1.3; 1.3 to 1.3), malignancy (HR=1.4; 1.4 to 1.5) and digestive disease (HR=5.2; 95% CI=4.9 to 5.5). Relative mortality during the first 5 years of follow-up decreased significantly over time. Incident cases of 2002-2014 had 2.3 years shorter mean estimated life span than matched comparators.

CONCLUSIONS:

Adult-onset and elderly-onset patients with UC, Crohn's disease and IBD-unclassified were all at increased risk of death. The increased mortality remained also after the introduction of biological therapies but has decreased over time.

Celiac disease linked to neurological disorders

Neurologic Deficits in Patients With Newly Diagnosed Celiac Disease Are Frequent and Linked With Antibodies to Transglutaminase 6

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Background & Aims

Celiac disease is an autoimmune disorder induced by ingestion of gluten that affects 1% of the population and is characterized by gastrointestinal symptoms, weight loss, and anemia. We evaluated the presence of neurologic deficits and investigated whether the presence of antibodies to TG6 increases the risk of neurologic defects in patients with a new diagnosis of celiac disease.

Methods

We performed a prospective cohort study at a secondary-care gastroenterology center of 100 consecutive patients who received a new diagnosis of celiac disease based on gastroscopy and duodenal biopsy. We collected data on neurologic history, and patients were evaluated in a clinical examination along with magnetic resonance imaging of the brain, magnetic resonance (MR) spectroscopy of the cerebellum, and measurements of antibodies against TG6 in serum samples. The first 52 patients recruited underwent repeat MR spectroscopy at 1 year after a gluten-free diet (GFD). The primary aim was to establish if detection of antibodies against TG6 can be used to identify patients with celiac disease and neurologic dysfunction.

Results

Gait instability was reported in 24% of the patients, persisting sensory symptoms in 12%, and frequent headaches in 42%. Gait ataxia was found in 29% of patients, nystagmus in 11%, and distal sensory loss in 10%. Sixty percent of patients had abnormal results from magnetic resonance imaging, 47% had abnormal results from MR spectroscopy of the cerebellum, and 25% had brain white matter lesions beyond that expected for their age group. Antibodies against TG6 were detected in serum samples from 40% of patients—these patients had significant atrophy of subcortical brain regions compared with patients without TG6 autoantibodies. In patients with abnormal results from MR spectroscopy of the cerebellum, those on the GFD had improvements detected in the repeat MR spectroscopy 1 year later.

Conclusions

In a prospective cohort study of patients with a new diagnosis of celiac disease at a gastroenterology clinic, neurologic deficits were common and 40% had circulating antibodies against TG6. We observed a significant reduction in volume of specific brain regions in patients with TG6 autoantibodies, providing evidence for a link between autoimmunity to TG6 and brain atrophy in patients with celiac disease. There is a need for early diagnosis, increased awareness of the neurologic manifestations among clinicians, and reinforcement of adherence to a strict GFD by patients to avoid permanent neurologic disability.

Dietary inflammation and CVD

J Nutr. 2019 May 17. pii: nxz085. doi: 10.1093/jn/nxz085.

Dietary Inflammatory Index Is Associated with Risk of All-Cause and Cardiovascular Disease Mortality but Not with Cancer Mortality in Middle-Aged and Older Japanese Adults.

Okada E¹, Shirakawa T², Shivappa N³, Wakai K⁴, Suzuki K⁵, Date C⁶, Iso H², Hébert JR³, Tamakoshi A⁷.

BACKGROUND:

The Dietary Inflammatory Index (DII) is a comprehensive, literature-derived index for assessing the effect of dietary constituents on inflammatory biomarkers. Several studies have shown an association between DII score and mortality, but there are limited prospective studies in Asian populations.

OBJECTIVES:

The aim of this study was to investigate the association between DII score and risk of all-cause, total cardiovascular disease (CVD), stroke, coronary heart disease (CHD), total cancer, digestive cancer, and noncancer/non-CVD mortality in the Japanese population.

METHODS:

A total of 58,782 Japanese participants aged 40-79 y who were enrolled in the Japan Collaborative Cohort Study during 1988-1990 were included in the analysis. DII scores were calculated based on a food-frequency questionnaire. HRs and 95% CIs for mortality according to DII quintiles were estimated using Cox proportional hazards models.

RESULTS:

During the median follow-up period of 19.3 y, a total of 11,693 participants died. The multivariable HR for all-cause mortality for the highest compared with the lowest DII quintiles was 1.13 (95% CI: 1.05, 1.21). For CVD mortality, the highest multivariable HRs were 1.30 (95% CI: 1.13, 1.49), 1.29 (95% CI: 1.05, 1.59), and 1.30 (95% CI: 0.96, 1.76) for total CVD, stroke, and CHD, respectively. No significant associations were observed between DII and risk of total cancer, digestive cancer, and noncancer/non-CVD mortality.

CONCLUSION:

Our findings suggest that a higher DII was associated with an increased risk of all-cause and CVD mortality among Japanese adults.

Red meat appears not to aggravate Crohn's disease

Gastroenterology. 2019 Mar 11. pii: S0016-5085(19)33556-5. doi: 10.1053/j.gastro.2019.03.015.

A Diet Low in Red and Processed Meat Does Not Reduce Rate of Crohn's Disease Flares.

Albenberg L¹, Brensinger CM², Wu Q³, Gilroy E³, Kappelman MD², Sandler RS⁴, Lewis JD⁵.

BACKGROUND & AIMS:

Diet may be an important factor in the progression of Crohn's disease (CD). We performed a randomized controlled trial to determine whether reduced consumption of red and processed meats decreases the risk of symptomatic relapse of CD, analyzing results from the Food and Crohn's Disease Exacerbation Study (FACES) trial.

METHODS:

Adults with CD were recruited into the FACES trial from IBD Partners, an Internet-based cohort of patients with inflammatory bowel disease, from November 2013 through June 2015. Individuals who were in remission (CD activity index [sCDAI] scores of ≤ 150), had completed a biannual survey, and reported consumption of red meat at least once weekly were randomly assigned to groups that consumed a minimum of 2 servings/week of red or processed meat (high meat, n = 118) or not more than 1 serving per month (low meat, n = 96) for 49 weeks. The primary outcome was relapse of CD, defined as increase in sCDAI score by ≥ 70 points and to >150 or a need for CD surgery or new CD medication. A secondary outcome, moderate or severe relapse, was based on an increase in sCDAI to >219 .

RESULTS:

During the trial, the high-meat groups reported consumption of 2 or more servings of red or processed meat during 98.5% of observed weeks compared with 18.8% of weeks for the low-meat group. Any and moderate to severe relapse occurred in 62% of participants in the high-meat group and 42% of participants in the low-meat group. There were no significant differences in time to any (P = .61) or moderate/severe (P = .50) relapse.

CONCLUSIONS:

In an analysis of data from the FACES trial, we found that among patients with CD in remission, level of red and processed meat consumption was not associated with time to symptomatic relapse. ClinicalTrials.gov, Number: NCT0192673.

10 A. CERVICAL SPINE**Chronic neck pain**

BMJ Open. 2019 Apr 24;9(4):e024557. doi: 10.1136/bmjopen-2018-024557.

Predictive models for short-term and long-term improvement in women under physiotherapy for chronic disabling neck pain: a longitudinal cohort study.

Bohman T¹, Bottai M², Björklund M^{3,4}.

OBJECTIVES:

To develop predictive models for short-term and long-term clinically important improvement in women with non-specific chronic disabling neck pain during the clinical course of physiotherapy.

DESIGN:

Longitudinal cohort study based on data from a randomised controlled trial evaluating short-term and long-term effects on sensorimotor function over 11 weeks of physiotherapy.

PARTICIPANTS AND SETTINGS:

Eighty-nine women aged 31-65 years with non-specific chronic disabling neck pain from Gävle, Sweden.

MEASURES:

The outcome, clinically important improvement, was measured with the Patient Global Impression of Change Scale (PGICS) and the Neck Disability Index (NDI), assessed by self-administered questionnaires at 3, 9 and 15 months from the start of the interventions (baseline). Twelve baseline prognostic factors were considered in the analyses. The predictive models were built using random-effects logistic regression. The predictive ability of the models was measured by the area under the receiver operating characteristic curve (AUC). Internal validity was assessed with cross-validation using the bootstrap resampling technique.

RESULTS:

Factors included in the final PGICS model were neck disability and age, and in the NDI model, neck disability, depression and catastrophising. In both models, the odds for short-term and long-term improvement increased with higher baseline neck disability, while the odds decreased with increasing age (PGICS model), and with increasing level of depression (NDI model). In the NDI model, higher baseline levels of catastrophising indicated increased odds for short-term improvement and decreased odds for long-term improvement. Both models showed acceptable predictive validity with an AUC of 0.64 (95% CI 0.55 to 0.73) and 0.67 (95% CI 0.59 to 0.75), respectively.

CONCLUSION:

Age, neck disability and psychological factors seem to be important predictors of improvement, and may inform clinical decisions about physiotherapy in women with chronic neck pain. Before using the developed predictive models in clinical practice, however, they should be validated in other populations and tested in clinical settings.

12 A. WHIPLASH

Interventions for acute whiplash

PLoS One. 2019 May 9;14(5):e0215803. doi: 10.1371/journal.pone.0215803. eCollection 2019.

A cluster randomised, double-blind pilot and feasibility trial of an active behavioural physiotherapy intervention for acute whiplash-associated disorder (WAD)II.

Wiangkham T^{1,2,3,4}, Duda J², Haque MS⁵, Price J⁶, Rushton A^{1,2}.

Whiplash-associated disorder (WAD) causes substantial social and economic burden, with $\geq 70\%$ patients classified as WADII (neck complaint and musculoskeletal sign(s)). Effective management in the acute stage is required to prevent development of chronicity; an issue for 60% of patients.

An Active Behavioural Physiotherapy Intervention (ABPI) was developed to address both physical and psychological components of WAD. The ABPI is a novel complex intervention designed through a rigorous sequential multiphase project to prevent transition of acute WAD to chronicity. An external pilot and feasibility cluster randomised double-blind (assessor, participants) parallel two-arm clinical trial was conducted in the UK private sector. The trial compared ABPI versus standard physiotherapy to evaluate trial procedures and feasibility of the ABPI for managing acute WADII in preparation for a future definitive trial. Six private physiotherapy clinics were recruited and cluster randomised using a computer-generated randomisation sequence. Twenty-eight (20 ABPI, 8 standard physiotherapy) participants [median age 38.00 (IQR = 21.50) years] were recruited. Data were analysed descriptively with a priori establishment of success criteria.

Ninety-five percent of participants in the ABPI arm fully recovered (Neck Disability Index ≤ 4 , compared to 17% in the standard physiotherapy arm); required fewer treatment sessions; and demonstrated greater improvement in all outcome measures (pain intensity, Cervical Range of Motion, Pressure Pain Threshold, EuroQol-5 Dimensions) except for the Impact of Events Scale and Fear Avoidance Beliefs Questionnaire.

The findings support the potential value of the ABPI, and that an adequately powered definitive trial to evaluate effectiveness (clinical, cost) is feasible with minor modifications to procedures.

13 B. TMJ/ORAL**Periodontitis and kidney disease**

J Clin Periodontol. 2019 Jun;46(6):631-639. doi: 10.1111/jcpe.13114.

Periodontitis as the risk factor of chronic kidney disease: Mediation analysis.

Lertpimonchai A^{1,2}, Rattanasiri S¹, Tamsailom S², Champaiboon C², Ingsathit A¹, Kitiyakara C³, Limpianunchai A⁴, Attia J^{5,6}, Sritara P⁷, Thakkinstian A¹.

AIM:

To determine sequences and magnitude of causality among periodontitis, diabetes and chronic kidney disease (CKD) by mediation analysis.

METHODS:

Ten-year-data were retrieved from the Electric Generation Authority of Thailand (EGAT) study. A cohort of 2,635 subjects was identified with no CKD at baseline. The interested outcome was CKD incidence defined as glomerular filtration rate <60 ml/min/1.73 m². The percentage of proximal sites with clinical attachment loss ≥ 5 mm was used to represent periodontitis. Mediation analysis with 1,000-replication bootstrapping was applied to two causal diagrams, diagram A (Periodontitis \rightarrow Diabetes \rightarrow CKD) and diagram B (Diabetes \rightarrow Periodontitis \rightarrow CKD).

RESULTS:

The cumulative incidence of CKD was 10.3 cases per 100 persons during 10-year period. In diagram A, each increasing percentage of proximal sites with severe periodontitis increased the adjusted odds ratio of CKD 1.010 (95% CI: 1.005, 1.015) and 1.007 (95% CI: 1.004, 1.013), by direct and indirect effect through diabetes, respectively. In diagram B, diabetes increased the odds of CKD twofold, with 6.5% of this effect mediated via periodontitis.

CONCLUSIONS:

Periodontitis had significant direct effect, and indirect effect through diabetes, on the incidence of CKD. Awareness about systemic morbidities from periodontitis should be emphasized.

13 D. SLEEP**Sleep apnea and surgical complications**

JAMA. 2019 May 14;321(18):1788-1798. doi: 10.1001/jama.2019.4783.

Association of Unrecognized Obstructive Sleep Apnea With Postoperative Cardiovascular Events in Patients Undergoing Major Noncardiac Surgery.

Chan MTV¹, Wang CY², Seet E³, Tam S⁴, Lai HY², Chew EFF⁵, Wu WKK¹, Cheng BCP⁶, Lam CKM⁶, Short TG⁷, Hui DSC¹, Chung F⁸;

IMPORTANCE: Unrecognized obstructive sleep apnea increases cardiovascular risks in the general population, but whether obstructive sleep apnea poses a similar risk in the perioperative period remains uncertain.

OBJECTIVES: To determine the association between obstructive sleep apnea and 30-day risk of cardiovascular complications after major noncardiac surgery.

DESIGN, SETTING, AND PARTICIPANTS: Prospective cohort study involving adult at-risk patients without prior diagnosis of sleep apnea and undergoing major noncardiac surgery from 8 hospitals in 5 countries between January 2012 and July 2017, with follow-up until August 2017. Postoperative monitoring included nocturnal pulse oximetry and measurement of cardiac troponin concentrations.

EXPOSURES: Obstructive sleep apnea was classified as mild (respiratory event index [REI] 5-14.9 events/h), moderate (REI 15-30), and severe (REI >30), based on preoperative portable sleep monitoring.

MAIN OUTCOMES AND MEASURES:

The primary outcome was a composite of myocardial injury, cardiac death, heart failure, thromboembolism, atrial fibrillation, and stroke within 30 days of surgery. Proportional-hazards analysis was used to determine the association between obstructive sleep apnea and postoperative cardiovascular complications.

RESULTS: Among a total of 1364 patients recruited for the study, 1218 patients (mean age, 67 [SD, 9] years; 40.2% women) were included in the analyses. At 30 days after surgery, rates of the primary outcome were 30.1% (41/136) for patients with severe OSA, 22.1% (52/235) for patients with moderate OSA, 19.0% (86/452) for patients with mild OSA, and 14.2% (56/395) for patients with no OSA. OSA was associated with higher risk for the primary outcome (adjusted hazard ratio [HR], 1.49 [95% CI, 1.19-2.01]; P = .01); however, the association was significant only among patients with severe OSA (adjusted HR, 2.23 [95% CI, 1.49-3.34]; P = .001) and not among those with moderate OSA (adjusted HR, 1.47 [95% CI, 0.98-2.09]; P = .07) or mild OSA (adjusted HR, 1.36 [95% CI, 0.97-1.91]; P = .08) (P = .01 for interaction). The mean cumulative duration of oxyhemoglobin desaturation less than 80% during the first 3 postoperative nights in patients with cardiovascular complications (23.1 [95% CI, 15.5-27.7] minutes) was longer than in those without (10.2 [95% CI, 7.8-10.9] minutes) (P < .001). No significant interaction effects on perioperative outcomes were observed with type of anesthesia, use of postoperative opioids, and supplemental oxygen therapy.

CONCLUSIONS AND RELEVANCE:

Among at-risk adults undergoing major noncardiac surgery, unrecognized severe obstructive sleep apnea was significantly associated with increased risk of 30-day postoperative cardiovascular complications. Further research would be needed to assess whether interventions can modify this risk.

30 A. HIP IMPINGEMENT**Is stiffness related to groin pain?**

Scand J Med Sci Sports. 2018 Jun;28(6):1681-1690. doi: 10.1111/sms.13069. Epub 2018 Mar 24.

Is stiffness related to athletic groin pain?

Gore SJ^{1,2,3}, Franklyn-Miller A^{1,4}, Richter C¹, Falvey EC^{1,5}, King E^{1,6}, Moran K^{2,3}.

Athletic groin pain (AGP) is a common injury prevalent in field sports. One biomechanical measure that may be of importance for injury risk is stiffness.

To date however, stiffness has not been examined in AGP. The primary aim was to determine whether AGP affects vertical and joint stiffness and if so, whether successful rehabilitation is associated with a change in stiffness.

Sixty-five male patients with AGP and fifty male controls were recruited to this study. Assessment included a biomechanical examination of stiffness during a lateral hurdle hop test. Subjects with AGP were tested pre- and post-rehabilitation, while controls were tested once. AGP subjects were cleared for return to play in a median time of 9.14 weeks (5.14-29.0). Stiffness was significantly different at pre-rehabilitation in comparison with controls for four of the ten stiffness values examined: ankle plantar flexor, knee extensor, hip abductor, and vertical stiffness ($P < .05$, $D = 0.36-0.79$). Despite clearance for return to play, of these four variables, only hip abductor stiffness changed significantly from pre- to post-rehabilitation ($P = .05$, $D = 0.35$) to become non-significantly different to the uninjured group ($P = .18$, $D = 0.26$).

These findings suggest that hip abductor stiffness may represent a target for AGP rehabilitation. Conversely, given the clearance for return to play, the lower sagittal plane and vertical stiffness in the AGP group in comparison with the uninjured controls likely represents either a compensatory mechanism to reduce the risk of further injury or a consequence of neuromuscular detraining.

33. MENISCUS

Inverted discoid tear

The characteristic findings of an inverted-type discoid lateral meniscus tear: a hidden tear pattern

Kengo Shimozaki, Hiroyuki Tsuchiya

BMC Musculoskeletal Disorders 2019 **20**:223 <https://doi.org/10.1186/s12891-019-2618-9>

Background

The purpose of this study was to reveal the clinical history and physical and magnetic resonance imaging (MRI) findings of patients with an inverted-type discoid lateral meniscus (DLM) tear compared with those with a symptomatic and torn discoid meniscus without inverted tear patterns.

Materials and methods

Between 2014 and 2016, 12 patients underwent arthroscopic partial meniscectomy for an inverted-type DLM tear (inverted group). We age-matched these patients with 12 controls who were extracted from many normal DLM tear cases in the same period (non-inverted group). The assessment items were traumatic history with the onset of pain, the mean duration between the appearance of symptoms and surgery, preoperative knee range of motion (ROM), positive findings on the McMurray test, knee locking or catching, and characteristic MRI findings. These items were compared between the two groups using χ^2 and Student's t-tests.

Result

All patients in the inverted group had clear trauma with the onset of pain during sports or daily life activities, and 7 of the 12 patients with a non-inverted type of DLM tear had clear trauma. There was a significantly higher rate of traumatic history in the inverted group than in the non-inverted group ($P = 0.03$). The mean duration between the appearance of symptoms and surgery, preoperative knee ROM, positive findings on the McMurray test, and knee locking or catching were not significantly different between the inverted and non-inverted groups. On MRI, the diagnosis ratio of DLM was significantly higher in the non-inverted group (9/12 cases) than in the inverted group (3/12 cases, $P = 0.04$). Nine of the 12 inverted-type patients had the characteristic findings of an inverted-type DLM tear, including a duplicated or enlarged posterior horn and blunting of the inner rim, on the sagittal plane of an MRI.

Conclusion

Patients with inverted-type DLM tears had clear trauma and infrequently had the characteristic MRI findings that are observed in patients with normal DLM tears. Physicians should suspect that an inverted-type DLM tear is present during diagnosis and focus on the posterior horn to find the inverted sign on the MRI sagittal plane.

Level of evidence Level III.

35. KNEE/TOTAL**Carbo restriction helps glucose levels**

J Arthroplasty. 2019 Jun;34(6):1105-1109. doi: 10.1016/j.arth.2019.01.049. Epub 2019 Jan 29.

Perioperative Dietary Restriction of Carbohydrates in the Management of Blood Glucose Levels in Patients Undergoing Total Knee Replacement.

Ferrera HK¹, Jones TE¹, Schudrowitz NJ¹, Collins JE², Lichstein PM¹, Shaner JL¹, Fitz W².

BACKGROUND:

Approximately 75% of the US population over 65 years has prediabetes or diabetes. Despite current evidence for the efficacy of carbohydrate restriction in managing blood glucose, this practice has not been implemented as part of routine perioperative blood sugar management. We hypothesize that a carbohydrate reduced hospital diet (CRD) of 135 g/d may improve blood sugar levels following total knee arthroplasty (TKA) compared to a non-carbohydrate reduced hospital diet (NCRD).

METHODS:

We randomized non-insulin-dependent prediabetic and diabetic patients undergoing TKA to either an NCRD or a CRD. Sixty-four patients were enrolled in the study and 2 were excluded, leading to 62 patients in the final analysis. The NCRD group included 14 females (47%) and 16 males (53%), with mean age of 68.5 years (± 6.3 years). The CRD group included 16 females (50%) and 16 males (50%), with mean age of 68.0 years (± 8.0 years). For hemoglobin A_{1c}, the NCRD group had mean 5.8% ($\pm 0.6\%$) and the CRD group had mean 5.7% ($\pm 0.8\%$). For body mass index, the NCRD group had mean 29.3 kg/m² (± 6.3 kg/m²) and the CRD group 32.7 kg/m² (± 5.0 kg/m²). The primary outcome measure was mean blood glucose.

RESULTS:

Mean blood sugar values during hospital stay were significantly lower in the CRD group with 121.5 mg/dL (± 17.1 mg/dL) compared to the NCRD group 141.2 mg/dL (± 31.3 mg/dL, P = .0031).

CONCLUSION:

Blood sugar levels after surgery can be significantly reduced with a CRD. Further research is necessary to study the effect of reduced blood sugar levels on complications and infection rates following TKA surgery.

LEVEL OF EVIDENCE: I.

37. OSTEOARTHRITIS/KNEE**Retro walking helped the most**

BMC Musculoskelet Disord. 2019 Apr 9;20(1):159. doi: 10.1186/s12891-019-2537-9.

Effect of 6-week retro or forward walking program on pain, functional disability, quadriceps muscle strength, and performance in individuals with knee osteoarthritis: a randomized controlled trial (retro-walking trial).

Alghadir AH¹, Anwer S^{2,3}, Sarkar B⁴, Paul AK⁵, Anwar D⁶.

BACKGROUND:

Previous studies reported the beneficial effects of walking in individual with mild to moderate knee osteoarthritis (OA). The current study aimed to compare the effect of 6-week retro versus forward walking program versus control group on pain, functional disability, quadriceps muscle strength and physical performance in individuals with knee OA.

METHODS:

A three-arm single-blinded, randomized, controlled trial and intention-to-treat analysis was conducted in outpatient physiotherapy department, King Saud University, Saudi Arabia. Sixty-eight individuals (mean age, 55.6 years; 38 female) with knee OA participated. The participants in the retro or forward walking group completed 10 min of supervised retro or forward walking training in addition to usual care, 3 days/week for 6 weeks. The control group received a routine physiotherapy program. This program comprises a combination of closed and open kinematic chain exercises, including straight leg raising, isometric quadriceps, isometric hip adduction, terminal knee extension, semi-squat, and leg press. The primary outcomes were mean pain and knee function score measured by the numerical rating scale and the Western Ontario and McMaster Universities Osteoarthritis Index, respectively. The secondary outcomes were mean score of quadriceps muscle strength and timed up and go test scores. All the outcomes were analyzed at baseline and week 6.

RESULTS:

In total, 68 subjects participated in this 6-week randomized, controlled trial. The completion rates of the primary and secondary outcome measures at week 6 were 91, 87, and 82% in the retro walking, forward walking, and control groups, respectively. In the intention-to-treat analysis, the retro walking group had a greater reduction in pain intensity (mean changes, 1.8 versus 1; $p = 0.01$) and functional disability (mean changes, 4.8 versus 2.2; $p = 0.008$) than the control group. Similarly, the retro walking group had a greater improvement in the quadriceps muscle strength (mean changes, 1.7 kg versus 0.7 kg; $p = 0.008$) and the timed up and go test (mean changes, 0.6 s versus 0.1 s; $p = 0.003$) than the control group.

CONCLUSIONS:

The 6-week retro walking program compared with forward walking or control groups resulted in greater reduction in pain and functional disability and improved quadriceps muscle strength and performance in individuals with knee OA.

Proprioceptive training helps knee OA

J Athl Train. 2019 Apr;54(4):418-428. doi: 10.4085/1062-6050-329-17. Epub 2019 Apr 17.

Proprioceptive Training and Outcomes of Patients With Knee Osteoarthritis: A Meta-Analysis of Randomized Controlled Trials.

Jeong HS^{1,2,3}, Lee SC^{1,2,3}, Jee H^{3,4}, Song JB¹, Chang HS¹, Lee SY^{1,2,3}.

OBJECTIVE:

To describe the effects of proprioceptive training on pain, stiffness, function, and functional test outcomes among patients with knee osteoarthritis (OA).

DATA SOURCES:

All studies completed from 1946 to 2017 were obtained from 4 databases (PubMed, MEDLINE, CINAHL, and SPORTDiscus).

STUDY SELECTION:

Three reviewers independently identified appropriate studies and extracted data.

DATA EXTRACTION:

Methodologic quality and level of evidence were assessed using the Physiotherapy Evidence Database scale and Oxford Centre for Evidence-Based Medicine guidelines. The standardized mean differences (SMDs) and 95% confidence intervals (CIs) were calculated for pain, stiffness, function, and functional test outcomes.

DATA SYNTHESIS:

Seven randomized controlled trials involving 558 patients with knee OA met the inclusion criteria. The selected studies had Physiotherapy Evidence Database scores of 6 to 8. All randomized controlled trials had an Oxford Centre for Evidence-Based Medicine level of evidence of 2. Meta-analysis of the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain subscale (SMD = -0.56; 95% CI = -1.06, -0.07; $P = .026$), function subscale (SMD = -0.40; 95% CI = -0.59, -0.21; $P < .001$), and non-WOMAC walking speed test (SMD = -1.07; 95% CI = -2.12, -0.01; $P = .048$) revealed that proprioceptive training had significant treatment effects. Proprioceptive training was not associated with reductions in WOMAC stiffness subscale scores and did not improve non-WOMAC get-up-and-go scores.


CONCLUSIONS:

Proprioceptive training effectively promoted pain relief and completion of functional daily activity among patients with knee OA and should be included in rehabilitation programs. Stiffness and other mobility measures were unchanged after proprioceptive training. Modified proprioceptive training programs are needed to target stiffness and improve additional physical function domains.

Management of

BMC Musculoskelet Disord. 2019; 20: 151. doi: 10.1186/s12891-019-2525-0
PMCID: PMC6454763 PMID: 30961569

Osteoarthritis- a systematic review of long-term safety implications for osteoarthritis of the knee

Jonathon Charlesworth, Jane Fitzpatrick,^{1,3,4} Nirmala Kanthi Panagodage Perera,^{1,2} and John Orchard^{1,5}

Background: There is no cure for knee osteoarthritis (KOA) and typically patients live approximately 30-years with the disease. Most common medical treatments result in short-term palliation of symptoms with little consideration of long-term risk. This systematic review aims to appraise the current evidence for the long-term (≥ 12 months) safety of common treatments for knee osteoarthritis (KOA).

Methods: Cochrane Database of Systematic Reviews, Medline and PubMed were systematically searched from 1990 to July 2017, inclusive. Inclusion criteria were 1) peer-reviewed publications investigating treatments for KOA referred to in the Australian Clinical Care Standard and/or Therapeutic Guidelines: Rheumatology 2) specifically addressing safety of the treatments 3) with ≥ 12 months of follow-up and 4) Downs and Black quality score ≥ 13 .

Results: Thirty-four studies fulfilled the inclusion criteria. Lifestyle modifications (moderate exercise and weight loss), paracetamol, glucosamine, Intraarticular Hyaluronic Acid (IAHA) and platelet-rich-plasma (PRP) injections have a low risk of harm and beneficial ≥ 12 month outcomes. Although Nonsteroidal Anti-inflammatory Drugs (NSAIDs) provide pain relief, they are associated with increased risk of medical complications. Cortisone injections are associated with radiological cartilage degeneration at > 12 months. Arthroscopy for degenerative meniscal tears in KOA leads to a 3-fold increase in total knee arthroplasty (TKA). TKA improves primary outcomes of KOA but has a low rate of significant medical complications.

Conclusions: Given the safety and effectiveness of lifestyle interventions such as weight loss and exercise, these should be advocated in all patients due to the low risk of harm. The use of NSAIDs should be minimized to avoid gastrointestinal complications. Treatment with opioids has a lack of evidence for use and a high risk of long-term harm. The use of IAHA and PRP may provide additional symptomatic benefit without the risk of harm. TKA is associated with significant medical complications but is justified by the efficacy of joint replacement in late-stage disease.

45 B. MANUAL THERAPY CERVICAL**Rx for HA's****Effectiveness of physical therapy on the suboccipital area of patients with tension-type headache A meta-analysis of randomized controlled trials**

Jiang, Wenbin, MDa; Li, Zhe, MDb; Wei, Ning, MDc; Chang, Wenli, MDd; Chen, Wei, MDe,*; Sui, Hong-Jin, MDa,*

Medicine: May 2019 - Volume 98 - Issue 19 - p e15487
doi: 10.1097/MD.00000000000015487

Article Metrics

Background: There has been a lot of research on physical therapy for tension-type headaches. However, the efficacy of physical therapy on the suboccipital region remains unclear.

Objective: To establish the effectiveness of physical therapy on the suboccipital area of patients with tension-type headache.

Methods: Databases including Cochrane Library, Medline/Pubmed, CNKI, Embase, and Google Scholar were searched. After independent study selection by 2 authors, data were extracted and collected independently. On 1 hand, authors compared the treatment of the suboccipital area with control group. On the other hand, the efficacy of several physical therapy techniques on the suboccipital region was compared. The quality of the included studies was assessed using the Cochrane Handbook. RevMan 5.3 software was used for data analysis. The primary outcome measures were the cervical range of motion, the visual analog scale, and headache disability inventory.

Results: Six randomized controlled trials with a total of 505 participants were included. Suboccipital soft-tissue inhibition technique (SIT) + occiput-atlas-axis global manipulation (OAA) was more effective than SIT in increasing craniocervical extension at 4 weeks post-treatment, the overall mean differences (MD) was 3.61, 95% confidence interval (CI) (0.89–6.34). There was no difference at 8 weeks post-treatment (MD 2.38, 95% CI –1.02 to 5.78, $P = .17$). SIT was more effective than SIT + OAA in increasing cervical flexion at 4-week post-treatment (MD –3.36, 95% CI –6.65 to –0.05). SIT + OAA was more effective than SIT on decreasing intensity of pain at 4-week post-treatment (MD –0.91, 95% CI –1.78 to –0.04), but no difference at 8-week (MD –0.43, 95% CI –1.18 to 0.33, $P = .27$). SIT + OAA was more effective than SIT in reducing the functional score of the headache disability inventory at 4-week post-treatment (MD –4.47, 95% CI –8.44 to –0.50). These results may indicate that the SIT + OAA combined therapy is more effective in short term (4-week), no major difference in longer term (8-week).

Conclusion: Combined therapy may be more suitable for the treatment of tension-type headache.

48 A. STM**Trigger point pressure and time**

Acupunct Med. 2019 May 7:acupmed2018011738. doi: 10.1136/acupmed-2018-011738.

Immediate effects of variable durations of pressure release technique on latent myofascial trigger points of the levator scapulae: a double-blinded randomised clinical trial.

Pecos-Martin D¹, Ponce-Castro MJ², Jiménez-Rejano JJ³, Nunez-Nagy S⁴, Calvo-Lobo C⁵, Gallego-Izquierdo T¹.

OBJECTIVE:

Latent myofascial trigger points (MTrPs) of the levator scapulae have a high prevalence and may influence conditions of the neck and shoulder. The pressure release technique is one of the most recommended manual therapy techniques. The aim of this study was to determine the effect of varying durations of the pressure release technique application on latent MTrPs of the levator scapulae.

METHODS:

In a three-arm (1:1:1 ratio), double-blinded, parallel, randomised clinical trial, 60 healthy university students (23 men, 37 women) with a mean±SD age of 20.0±2.67 years were recruited. Subjects were assigned to receive pressure release in one latent MTrP of the levator scapulae lasting 30s (T_{30s}; n=17), 60s (T_{60s}; n=22) or 90s (T_{90s}; n=21). Active cervical range of movement (CROM), strength, pressure pain threshold (PPT) and neck pain intensity at full stretch were measured immediately before and after treatment.

RESULTS:

Mixed-model analyses of variance showed statistically significant differences for PPT (P=0.045; partial Eta²=0.103), comparing T_{60s} versus T_{30s} (P=0.009; Cohen's d=1.044) and T_{90s} versus T_{30s} groups (P=0.001; Cohen's d=1.253), and for left side bending strength (P=0.043; partial Eta²=0.105), comparing T_{90s} versus T_{30s} (P=0.023; Cohen's d=0.907). The rest of the comparisons did not present any significant differences (P≥0.05).

CONCLUSIONS:

The 60 s and 90 s applications of the pressure release technique may be recommended to increase PPT and strength, respectively, in latent MTrPs of the levator scapulae in the short term.

52. EXERCISE**Exercise for hip and knee OA**

Sports Med. 2019 May;49(5):743-761. doi: 10.1007/s40279-019-01082-0.

Relative Efficacy of Different Exercises for Pain, Function, Performance and Quality of Life in Knee and Hip Osteoarthritis: Systematic Review and Network Meta-Analysis.

Goh SL^{1,2}, Persson MSM¹, Stocks J¹, Hou Y³, Welton NJ⁴, Lin J³, Hall MC⁵, Doherty M¹, Zhang W⁶.

BACKGROUND:

Guidelines recommend exercise as a core treatment for osteoarthritis (OA). However, it is unclear which type of exercise is most effective, leading to inconsistency between different recommendations.

OBJECTIVES:

The aim of this systematic review and network meta-analysis was to investigate the relative efficacy of different exercises (aerobic, mind-body, strengthening, flexibility/skill, or mixed) for improving pain, function, performance and quality of life (QoL) for knee and hip OA at, or nearest to, 8 weeks.

METHODS:

We searched nine electronic databases up until December 2017 for randomised controlled trials that compared exercise with usual care or with another exercise type. Bayesian network meta-analysis was used to estimate the relative effect size (ES) and corresponding 95% credibility interval (CrI) (PROSPERO registration: CRD42016033865).

FINDINGS:

We identified and analysed 103 trials (9134 participants). Aerobic exercise was most beneficial for pain (ES 1.11; 95% CrI 0.69, 1.54) and performance (1.05; 0.63, 1.48). Mind-body exercise, which had pain benefit equivalent to that of aerobic exercise (1.11; 0.63, 1.59), was the best for function (0.81; 0.27, 1.36). Strengthening and flexibility/skill exercises improved multiple outcomes at a moderate level. Mixed exercise was the least effective for all outcomes and had significantly less pain relief than aerobic and mind-body exercises. The trend was significant for pain ($p = 0.01$), but not for function ($p = 0.07$), performance ($p = 0.06$) or QoL ($p = 0.65$).

CONCLUSION:

The effect of exercise varies according to the type of exercise and target outcome. Aerobic or mind-body exercise may be the best for pain and function improvements. Strengthening and flexibility/skill exercises may be used for multiple outcomes. Mixed exercise is the least effective and the reason for this merits further investigation.

56. ATHLETICS**Component analysis**

J Strength Cond Res. 2019 Feb 6. doi: 10.1519/JSC.0000000000003028

Principal Component Analysis of the Associations Between Kinetic Variables in Cutting and Jumping, and Cutting Performance Outcome.

Welch N^{1,2,3}, Richter C^{1,2}, Moran K^{2,3}, Franklyn-Miller A^{1,4}.

Welch, N, Richter, C, Moran, K, and Franklyn-Miller, A. Principal component analysis of the associations between kinetic variables in cutting and jumping, and cutting performance outcome. J Strength Cond Res XX(X): 000-000, 2019-

The primary aim of this study was to determine which features within the ground reaction force (GRF) trace during cutting are related to performance outcome in different angled cuts.

The secondary aim was to understand the relationship between GRF features in a series of maximum strength, explosive strength, and reactive strength tests, and cutting performance outcome.

Twenty-five male intercounty Gaelic football players (23.5 ± 4.2 years, 183 ± 6 cm, and 83 ± 6.9 kg) participated in the study. Participants completed 110 and 45° cutting tasks, single leg squat jumps, drop landings, drop jumps, and isometric midthigh pulls. A principal component (PC) analysis and simulation approach were applied to the data and correlations between PCs and cutting performance outcome measured. Lower vertical to horizontal impulse ratios ($r = -0.70$ to -0.46) in both cuts and greater forces over the first 50 ms of ground contact ($r = -0.44$) in the 110° cut correlated with enhanced cutting performance outcomes. Greater reactive strength index and height in the drop jump ($r = -0.51$ and -0.54) and greater impulses over the first 25 ms of ground contact in the drop landing ($r = 0.49$ and 0.70) correlated with enhanced cutting performance outcomes.

These results highlight the importance of greater horizontal and rapid force production in cutting and greater reactive strength qualities to enhance cutting performance.

63. PHARMACOLOGY

Pre-surgical opioid use worse outcomes

Preoperative opioid use is associated with worse patient outcomes after Total joint arthroplasty: a systematic review and meta-analysis

C. Michael Goplensley Verbeek, Sung Hyun Kang, C. Allyson Jones, Donald C. Voaklander, Thomas A. Churchill and Lauren A. Beaupre

BMC Musculoskeletal Disorders 2019 **20**:234 <https://doi.org/10.1186/s12891-019-2619-8>

Background

A significant number of patients use opioids prior to total joint arthroplasty (TJA) in North America and there is growing concern that preoperative opioid use negatively impacts postoperative patient outcomes after surgery. This systematic review and meta-analysis evaluated the current evidence investigating the influence of preoperative opioid use on postoperative patient-reported outcomes (PRO) after total joint arthroplasty.

Methods

A systematic search was performed using Ovid, Embase, Cochrane Library, Scopus, Web of Science Core Collection, CINAHL on February 15th, 2018. Studies reporting baseline and postoperative PRO among those prescribed preoperative opioids and those who were not prior to total knee and hip arthroplasty were included. Standardized mean differences (SMD) in absolute difference and relative change in PRO measures between the two groups was calculated using random effect models.

Results

Six studies were included ($n = 7356$ patients); overall 24% of patients were prescribed preoperative opioids. Patients with preoperative opioid use had worse absolute postoperative PRO scores when compared to those with no preoperative opioid use (standardized mean difference (SMD) -0.53, 95% Confidence interval (CI) -0.75, -0.32, $p < 0.0001$). When relative change in PRO score was analyzed, as measured by difference between postoperative and preoperative PRO scores, there was no group differences (SMD -0.26, 95% CI -0.56, 0.05, $p = 0.10$).

Conclusion

Patients prescribed preoperative opioids may attain worse overall pain and function benefits after TJA when compared to opioid-naïve patients, but do still benefit from undergoing TJA. These results suggest preoperative opioid users should be judiciously counselled regarding potential postoperative pain and function improvements after TJA.

65. NEUROLOGICAL CONDITIONS**Spasticity****Residual Descending Motor Pathways Influence Spasticity after Spinal Cord Injury**

Sina Sangari PhD Henrik Lundell PhD Steven Kirshblum MD
Monica A. Perez PhD

<https://doi.org/10.1002/ana.25505>

Objective

Spasticity is one of the most common symptoms manifested in humans with spinal cord injury (SCI). The neural mechanisms contributing to its development are not yet understood. Using neurophysiological and imaging techniques, we examined the influence of residual descending motor pathways on spasticity in humans with SCI.

Methods

We measured spasticity in 33 individuals with motor complete SCI (determined by clinical exam) without preservation of voluntary motor output in the quadriceps femoris muscle. To examine residual descending motor pathways, we used magnetic and electrical stimulation over the leg motor cortex to elicit motor evoked potentials (MEPs) in the quadriceps femoris muscle and structural magnetic resonance imaging to measure spinal cord atrophy.

Results

We found that 60% of participants showed symptoms of spasticity while the other 40% showed no spasticity, demonstrating the presence of two clear subgroups of humans with motor complete SCI. MEPs were only present in individuals who had spasticity and MEP size correlated with the severity of spasticity. Spinal cord atrophy was greater in non-spastic compared with spastic subjects. Notably, the degree of spared tissue in the lateral regions of the spinal cord was positively correlated with the severity of spasticity, indicating preservation of white matter related to motor tracts when spasticity was present.

Interpretation

These results support the hypothesis that preservation of descending motor pathways influence spasticity in humans with motor complete SCI; a knowledge that might help the rehabilitation and assessment of people with SCI.