

2. LBP

Changing behaviors

Occup Environ Med. 2018 Jan 12. pii: oemed-2017-104732. doi: 10.1136/oemed-2017-104732.

Reducing sedentary behaviour to decrease chronic low back pain: the stand back randomised trial.

Barone Gibbs B¹, Hergenroeder AL², Perdomo SJ¹, Kowalsky RJ³, Delitto A², Jakicic JM¹.

OBJECTIVE:

The Stand Back study evaluated the feasibility and effects of a multicomponent intervention targeting reduced prolonged sitting and pain self-management in desk workers with chronic low back pain (LBP).

METHODS:

This randomised controlled trial recruited 27 individuals with chronic LBP, Oswestry Disability Index (ODI) >10% and desk jobs (sitting ≥ 20 hours/week). Participants were randomised within strata of ODI (>10%-<20%, $\geq 20\%$) to receive bimonthly behavioural counselling (in-person and telephone), a sit-stand desk attachment, a wrist-worn activity-prompting device and cognitive behavioural therapy for LBP self-management or control. Self-reported work sitting time, visual analogue scales (VAS) for LBP and the ODI were assessed by monthly, online questionnaires and compared across intervention groups using linear mixed models.

RESULTS:

Baseline mean (SD) age was 52 (11) years, 78% were women, and ODI was 24.1 (10.5)%. Across the 6-month follow-up in models adjusted for baseline value, work sitting time was 1.5 hour/day ($P < 0.001$) lower comparing intervention to controls. Also across follow-up, ODI was on average 8 points lower in intervention versus control ($P = 0.001$). At 6 months, the relative decrease in ODI from baseline was 50% in intervention and 14% in control ($P = 0.042$). LBP from VAS was not significantly reduced in intervention versus control, though small-to-moderate effect sizes favouring the intervention were observed (Cohen's d ranged from 0.22 to 0.42).

CONCLUSION:

An intervention coupling behavioural counselling targeting reduced sedentary behaviour and pain self-management is a translatable treatment strategy that shows promise for treating chronic LBP in desk-bound employees.

5. SURGERY

Morbidity

Risk factors for perioperative morbidity in spine surgeries of different complexities: A multivariate analysis of 1,009 consecutive patients

The Spine Journal — | February 23, 2018

Farshad M, et al.

The researchers aimed to identify predictive risk factors for peri- and early post-operative morbidities in spine surgeries of different complexities in a large cohort of consecutive patients. For peri- and early post-operative morbidities in spine surgery, several modifiable and non-modifiable risk factors were recognized. Among these, surgical factors [complexity, revision surgery, instrumentation (including the pelvis etc)] seemed to play a crucial role. They proposed and validated a classification of surgical complexity.

Methods

- Researchers performed a retrospective case study.
- They created and applied a classification of surgical complexity (grade I-III) to 1,009 patients who consecutively underwent spine surgery at a single university hospital.
- Documentation of the incidence and type of peri- and early post-operative morbidities was performed.
- Risk factors were analyzed with multivariate binary logistic regression for
 - Hospital stay ≥ 10 days,
 - Intermediate care unit (IMC) stay ≥ 24 hours,
 - Blood loss > 500 mL, and
 - Occurrence of a surgical or medical morbidity.
 -
 - **Results**
- In this study, morbidity was defined as a deviation from the regular postoperative course; this included surgical reasons such as relapse of symptoms of any kind (3.3%), wound healing problems (2.4%), implant-associated complications (1.6%), post-operative neurological deficits (1.5%), infection (1.5%), fracture (0.8%), and dural tear in need of revision (0.6%).
- Among others, medical reasons included anemia (1.8%), symptomatic electrolyte derailment (1.0%), and cardiac complications (0.7%).
- Male gender was identified as an independent risk factor associated with a surgical reason for an irregular post-operative course.
- Risk factors for a medical reason included high creatinine levels preoperatively, higher blood loss, and systemic steroid use.
- Preoperatively high CRP, prolonged postoperative IMC stay, and revision surgery were the independent risk factors for a prolonged hospitalization.
- A blood loss > 500 mL was observed in association with spinal stabilization/fusion surgery, particularly if involving the lumbosacral spine, age, and length of surgery.
- Higher surgical complexity, involvement of the pelvis in instrumentation, ASA class ≥ 3 , and higher creatinine levels preoperatively were observed to be associated with a postoperative IMC stay > 24 hours.

Discectomy helps

Spine J. 2018 Feb 14. pii: S1529-9430(18)30072-X. doi: 10.1016/j.spinee.2018.02.014.

Back pain improves significantly following discectomy for lumbar disc herniation.

Owens RK 2nd¹, Carreon LY², Bisson EF³, Bydon M⁴, Potts EA⁵, Glassman SD⁵.

BACKGROUND CONTEXT:

Although lumbar disc herniation (LDH) classically presents with lower extremity radiculopathy, there are patients who have substantial associated back pain **PURPOSE:** To determine if patients with lumbar disc herniation (LDH) with substantial back pain improve with decompression alone.

STUDY DESIGN:

Longitudinal observational cohort **PATIENT SAMPLE:** Patients enrolled in the Quality and Outcomes Database (QOD) with LDH and a baseline back pain score ≥ 5 of 10 who underwent 1 or 2-level lumbar discectomy only **OUTCOME MEASURES:** Back and leg pain scores (0-10), Oswestry Disability Index (ODI), and EuroQoL 5D (EQ-5D).

METHODS:

. Standard demographic and surgical variables were collected, as well as patient reported outcomes at baseline and at 3 and 12 months postoperatively.

RESULTS:

The mean age of the cohort was 49.8 years and 1195 (52.8%) were male. Mean BMI was 30.1 kg/m². About half of the patients (1103, 48.8%) underwent single level discectomy and the other half (1159, 51.2%) had 2-level discectomy. Average blood loss was 44cc. Most of the patients (2217, 98%) were discharged home with routine postoperative care. The average length of stay was 0.53 days. At 3 months and 12 months postoperatively, there were statistically significant ($p < 0.000$) improvements in back pain (7.7 to 2.9 to 3.2), leg pain (7.5 to 2.3 to 2.5) and ODI (26.2 to 11.6 to 11.2). Patients with a single-level discectomy, compared to patients with a two-level discectomy, had similar improvements in 3- and 12 month back pain, leg pain and ODI scores.

CONCLUSION:

Patients with LDH who have substantial back pain can be counseled to expect improvement in their backpain scores 12 months after a discectomy.

Conservative vs fusion

J Orthop Sci. 2018 Jan 29. pii: S0949-2658(18)30005-8. doi: 10.1016/j.jos.2018.01.003

A comparative study of 2-year follow-up outcomes in lumbar spinal stenosis patients treated with physical therapy alone and those with surgical intervention after less successful physical therapy.

Minetama M¹, Kawakami M², Nakagawa M², Ishimoto Y², Nagata K², Fukui D², Sumiya T², Kitagawa T², Miyake T², Yamamoto Y², Sakon N², Matsuoka T², Nakagawa Y².

BACKGROUND:

The efficacy of physical therapy for patients with lumbar spinal stenosis (LSS) has been reported only for the short term, and few reports have compared outcomes of surgical treatment with nonsurgical treatment after physical therapy. The purpose of this study was to assess 2-year outcomes of LSS patients treated with surgery or under follow-up observation after physical therapy for 6 weeks.

METHODS:

Patients presenting with neurogenic claudication, radiologically-confirmed central LSS affecting both legs and refractory symptoms to pharmacotherapy of more than 3 months were enrolled. Patients were treated with manual therapy, stretching and strengthening exercises, and body weight-supported treadmill walking once a week for 6 weeks. Clinical outcomes were measured using the Zurich Claudication Questionnaire (ZCQ), visual analog scale of low back pain, leg pain, and numbness, the Japanese Orthopedic Association Back Pain Evaluation Questionnaire and the SF-36. Two years after physical therapy, patients were classified into the observation group (Group I) or the surgery group (Group II), whose patients failed to respond to physical therapy and wanted to undergo surgery.

RESULTS:

Thirty-eight patients were enrolled; 28 had complete data at 2 years: 21 and 7 in Groups I and II, respectively. Group II had a higher body mass index (BMI) than Group I. There were no significant differences in clinical outcomes at baseline. Six weeks after physical therapy, Group I had significantly better outcomes for symptom severity and physical function on the ZCQ subscales, physical functioning and bodily pain on the SF-36 subscales. These outcomes in Group I were maintained or improved and did not differ significantly between groups at 2-years. However, the physical function on the ZCQ subscales was improved in Group II more than those in Group I (mean difference -0.6; 95% CI: -1.2 to -0.03, $P < 0.05$) at 2 years.

CONCLUSIONS:

At 2 years, the outcomes except for the change in physical function score in the ZCQ subscale did not differ significantly between patients who had undergone surgery and those who avoided surgery.

Risks of fusions

Spine (Phila Pa 1976). 2018 Mar 1;43(5):364-369. doi: 10.1097/BRS.0000000000001677.

Risk Factors for Readmissions Following Anterior Lumbar Interbody Fusion.

Phan K^{1,2}, Lee NJ³, Kothari P³, Kim JS³, Cho SK³.

STUDY DESIGN:

Retrospective study of prospectively collected data.

OBJECTIVE:

To analyze the incidence and risk factors for readmissions following anterior lumbar interbody fusion.

SUMMARY OF BACKGROUND DATA:

No study has yet reported readmission rates for a specific lumbar surgical approach. There is evidence to indicate differences in perioperative complication rates between anterior versus posterior lumbar interbody fusion techniques, which may translate into differences in readmission rates.

METHODS:

The American College of Surgeons National Surgical Quality Improvement Program is a large multicenter clinical registry that prospectively collects preoperative risk factors, intraoperative variables, and 30-day postoperative morbidity and mortality outcomes from about 400 hospitals nationwide. Current Procedural Terminology codes were used to query the database for adults who underwent anterior lumbar interbody fusion. Patients were separated into groups of those with and without 30-day readmissions. Univariate analysis and multivariate logistic regression were used to analyze the effect of different risk factors on 30-day readmissions.

RESULTS:

Multivariate analysis showed that morbid obesity (odds ratio 15.6, P=0.002) and alcohol use (odds ratio 16.9, P=0.004) independently predicted unplanned 30-day readmission. Sex, pulmonary comorbidity, cardiac comorbidity, and steroid use were not found to be significant independent predictors of unplanned 30-day readmission in anterior lumbar interbody fusion.

CONCLUSION:

Adult patients undergoing anterior lumbar interbody fusion who were morbidly obese and had history of alcohol use are at increased risk for 30-day readmissions. Future studies should look to directly compare readmission rates and risk factors between alternative lumbar interbody surgical approaches with longer follow-up and more clinical and radiological parameters investigated.

7. PELVIC ORGANS/WOMAN'S HEALTH

Adolescent ovulation and menstrual cycle

Arch Dis Child. 2018 Mar;103(3):235-239. doi: 10.1136/archdischild-2017-312968. Epub 2017 Aug 9.

The majority of irregular menstrual cycles in adolescence are ovulatory: results of a prospective study.

Peña AS^{1,2,3}, Doherty DA⁴, Atkinson HC⁴, Hickey M⁵, Norman RJ^{2,6}, Hart R⁴.

PURPOSE:

While ovulation is most likely to occur in adolescent girls with regular menstrual cycles, there are limited data on the incidence of ovulation in girls with irregular menstrual cycles in early postmenarcheal years. The aim of the study was to evaluate the presence of ovulation in healthy postmenarcheal girls with irregular menstrual cycles.

METHODS, DESIGN AND SUBJECTS:

Prospective cohort study over 12 weeks including 40 healthy postmenarcheal girls recruited from the population-based cohort of adolescents from Western Australian Pregnancy Cohort (Raine) Study with irregular menstrual cycles defined by either menstrual cycles <21 days or >35 days in duration or cycle length that varied from month to month by >4 days according to menstrual diaries.

MAIN OUTCOME MEASURE:

Ovulation defined by urinary pregnanediol-3 α -glucuronide/creatinine measurements higher than three times above minimum value obtained from 12 samples (1 per week).

RESULTS:

Forty girls (37 Caucasians) with irregular menstrual cycles aged 15.1 (median (IQR) 14.9-15.4) years who were 2.3 (1.9-3.3) years postmenarche were assessed. Urinary pregnanediol-3 α -glucuronide/creatinine values identified that 33 girls (82.5%) ovulated during the 3 months of observation and 7 girls had anovulatory cycles. Menstrual diaries collected for a median (IQR) of 159 (137.5-188.2) days showed median minimal and maximum menstrual cycle duration of 24 (11.5-29) and 38.5 (35-48) days, respectively.

CONCLUSIONS:

A large proportion of healthy adolescent girls with irregular menstrual cycles are still ovulating despite irregular and infrequent menses.

8. VISCERA

CV disease and work intensity

Cardiac risk factors and prevention

Original research article

Differing associations for sport versus occupational physical activity and cardiovascular risk

Marco Mario Ferrario^{1,2,3}, Giancarlo Cesana⁷ <http://dx.doi.org/10.1136/heartjnl-2017-312594>

Objectives We investigate the independent and interacting long-term associations of occupational physical activity (OPA) and sport physical activity (SpPA) with the incidence of coronary heart disease (CHD) and cardiovascular diseases (CVD; CHD plus ischaemic stroke) in North Italian male workers.

Methods 3574 employed men aged 25–64 years, free of CVD at baseline, recruited in three population-based and one factory-based cohorts, were included in the analysis. The Baecke Questionnaire was used to assess OPA and SpPA in ‘minutes per week’ of moderate or vigorous PA. We estimated the associations between different domains of PA and the endpoints, adjusting for major CVD risk factors, using Cox models.

Results During a median follow-up of 14 years, 135 and 174 first CHD and CVD events, fatal and non-fatal, occurred. Compared with the intermediate OPA tertile, the HRs for CHD among low and high OPA workers were 1.66 (95% CI 1.06 to 2.59) and 1.18 (0.72 to 1.94), respectively (P value=0.07). Decreasing trends in CHD and CVD rates across increasing levels of SpPA were also found, with an HR for CVD of 0.68 (0.46 to 0.98) for intermediate/recommended SpPA compared with poor SpPA. We also found a statistically significant SpPA-OPA interaction, and the protective effect of SpPA was only found among sedentary workers, for both endpoints. Conversely, high OPA workers with intermediate/recommended SpPA levels had increased CHD and CVD rates compared with the poor SpPA category.

Conclusions Our results provide further evidence on the health paradox of OPA, with higher CVD rates among workers with intense PA at work. Moreover, the protective effect on CVDs of SpPA is prominent in sedentary workers, but it attenuates and even reverses in moderate and strenuous OPA workers.

Environmental noise and heart problems

Eur Heart J. 2014 Apr 1; 35(13): 829–836.

doi: 10.1093/eurheartj/ehu030 MCID: PMC3971384

Cardiovascular effects of environmental noise exposure

Thomas Münzel,^{1,*} Tommaso Gori,¹ Wolfgang Babisch,² and Mathias Basner³

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The role of noise as an environmental pollutant and its impact on health are being increasingly recognized. Beyond its effects on the auditory system, noise causes annoyance and disturbs sleep, and it impairs cognitive performance. Furthermore, evidence from epidemiologic studies demonstrates that environmental noise is associated with an increased incidence of arterial hypertension, myocardial infarction, and stroke. Both observational and experimental studies indicate that in particular night-time noise can cause disruptions of sleep structure, vegetative arousals (e.g. increases of blood pressure and heart rate) and increases in stress hormone levels and oxidative stress, which in turn may result in endothelial dysfunction and arterial hypertension. This review focuses on the cardiovascular consequences of environmental noise exposure and stresses the importance of noise mitigation strategies for public health.

Keywords: Cardiovascular disease, Noise, Pollutants, Sleep, Hypertension, Myocardial infarction, Stroke

IBS and Parkinsonism

Inflammatory bowel disease and risk of Parkinson's disease in Medicare beneficiaries

Parkinsonism & Related Disorders — | February 23, 2018

Camacho-Soto A, et al.

During this study, experts inspected the association between Parkinson's disease (PD) risk and inflammatory bowel disease (IBD) and IBD-associated conditions and treatment. An inverse link was disclosed between PD with IBD and with both Crohn's disease and ulcerative colitis. The inference drawn was that IBD was related to a lower risk of developing PD.

Oats and Celiac's

Gastroenterology. 2017 Aug;153(2):395-409.e3. doi: 10.1053/j.gastro.2017.04.009. Epub 2017 Apr 18.

Safety of Adding Oats to a Gluten-Free Diet for Patients With Celiac Disease: Systematic Review and Meta-analysis of Clinical and Observational Studies.

Pinto-Sánchez MI¹, Causada-Calo N¹, Bercik P¹, Ford AC², Murray JA³, Armstrong D¹, Semrad C⁴, Kupfer SS⁴, Alaedini A⁵, Moayyedi P¹, Leffler DA⁶, Verdú EF⁷, Green P⁵.

BACKGROUND & AIMS:

Patients with celiac disease should maintain a gluten-free diet (GFD), excluding wheat, rye, and barley. Oats might increase the nutritional value of a GFD, but their inclusion is controversial. We performed a systematic review and meta-analysis to evaluate the safety of oats as part of a GFD in patients with celiac disease.

METHODS:

We searched the Cochrane Central Register of Controlled Trials, MEDLINE, and EMBASE databases for clinical trials and observational studies of the effects of including oats in GFD of patients with celiac disease. The studies reported patients' symptoms, results from serology tests, and findings from histologic analyses. We used the GRADE approach to assess the quality of evidence.

RESULTS:

We identified 433 studies; 28 were eligible for analysis. Of these, 6 were randomized and 2 were not randomized controlled trials comprising a total of 661 patients-the remaining studies were observational. All randomized controlled trials used pure/uncontaminated oats. Oat consumption for 12 months did not affect symptoms (standardized mean difference: reduction in symptom scores in patients who did and did not consume oats, -0.22; 95% CI, -0.56 to 0.13; P = .22), histologic scores (relative risk for histologic findings in patients who consumed oats, 0.24; 95% CI, 0.01-4.8; P = .35), intraepithelial lymphocyte counts (standardized mean difference, 0.21; 95% CI, reduction of 1.44 to increase in 1.86), or results from serologic tests. Subgroup analyses of adults vs children did not reveal differences. The overall quality of evidence was low.

CONCLUSIONS:

In a systematic review and meta-analysis, we found no evidence that addition of oats to a GFD affects symptoms, histology, immunity, or serologic features of patients with celiac disease. However, there were few studies for many endpoints, as well as limited geographic distribution and low quality of evidence. Rigorous double-blind, placebo-controlled, randomized controlled trials, using commonly available oats sourced from different regions, are needed.

Smoking and health risks

Association of cigarette, cigar, and pipe use with mortality risk in the US population

JAMA Internal Medicine — | February 20, 2018

Christensen CH, et al.

This trial incorporated an assessment of the mortality risks related to current and former use of cigars, pipes, and cigarettes in the US cohort. Data unveiled that the use of cigar, pipe, and cigarette conferred mortality risks, even among nondaily current cigarette users. It was determined that former users presented with lower risks when compared to current users. Researchers highlighted the significance of cessation in order to reduce mortality and morbidity from combustible tobacco use.

Methods

- The design of National Longitudinal Mortality Study was a longitudinal population-based, nationally representative health survey with mortality follow-up.
- It included demographic and other information from the Current Population Survey, tobacco product use information from the Tobacco Use Supplement, and mortality data from the National Death Index.
- Data with regard to tobacco use was obtained from the enrollees at baseline in surveys starting from 1985 with follow-up for mortality through the end of 2011.
- A total of 357,420 candidates who reported exclusively using cigar, pipes, or cigarettes or reported never using any type of tobacco product were recruited for this research.
- The exposures consisted of current or former exclusive use of any cigar (little cigar, cigarillos, large cigar), traditional pipe, or cigarette and never tobacco use.
- In addition, data with regard to current daily and nondaily use were obtained.
- Estimates were adjusted for age, sex, race/ethnicity, education, and survey year.
- All-cause and cause-specific mortality as identified as the primary cause of death from death certificate information served as the main outcomes and measures.
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- Results
- Among the 357,420 subjects, maximum number of current and former cigar and pipe smokers were male (79.3%-98.0%), and smokers were more evenly divided by sex (46% of current daily smokers were male).
- During follow-up 51,150 deaths were recorded.
- Higher all-cause mortality risks were discovered among exclusive current cigarette smokers (hazard ratio [HR], 1.98; 95% CI, 1.93-2.02) and exclusive current cigar smokers (HR, 1.20; 95% CI, 1.03-1.38) compared to never tobacco users.
- As per the findings, exclusive current cigarette smokers (HR, 4.06; 95% CI, 3.84-4.29), exclusive current cigar smokers (HR, 1.61; 95% CI, 1.11-2.32), and exclusive current pipe smokers (HR, 1.58; 95% CI, 1.05-2.38) presented with an elevated risk of dying from a tobacco-related cancer (including bladder, esophagus, larynx, lung, oral cavity, and pancreas).
- Data demonstrated statistically prominent correlations among current nondaily cigarette users with deaths from lung cancer (HR, 6.24; 95% CI, 5.17-7.54), oral cancer (HR, 4.62; 95% CI, 1.84-11.58), circulatory death (HR, 1.43; 95% CI, 1.30-1.57), cardiovascular death (HR, 1.24; 95% CI, 1.11-1.39), cerebrovascular death (stroke) (HR, 1.39; 95% CI, 1.12-1.74), and chronic obstructive pulmonary disease (HR, 7.66; 95% CI, 6.09-9.64) as well as for daily smokers.

10 A. CERVICAL SPINE**Eye pursuit**

Musculoskelet Sci Pract. 2018 Feb;33:18-23. doi: 10.1016/j.msmsp.2017.10.007. Epub 2017 Oct 17.

Validity of clinical measures of smooth pursuit eye movement control in patients with idiopathic neck pain.

Daly L¹, Giffard P¹, Thomas L¹, Treleaven J².

BACKGROUND:

Electrooculography is useful in detecting smooth pursuit neck torsion (SPNT) abnormalities in patients with neck pain, however, a validated, clinically relevant measure is lacking.

OBJECTIVES:

To explore the validity of visual assessment of formal and clinical videotaped SPNT tests in comparison to electrooculography.

DESIGN:

Cross-sectional observational study.

METHOD:

Twenty patients with idiopathic neck pain (INP) and twenty healthy controls performed the electrooculography SPNT test: first in neutral, then 45° trunk-under-head torsion to the left then right. The formal video test involved the participant following a horizontal laser stimulus simultaneous to electrooculography. The clinical video test was then performed where the participant followed the clinician's finger in the horizontal direction. One blinded investigator interpreted and analysed the electrooculography trace and two others interpreted the videos.

RESULTS:

Patients with INP had a significantly ($p < 0.05$) greater SPNT difference than healthy controls. Visual observation of the formal test had 82.5% agreement with electrooculography and showed fair sensitivity (63.5%) and good specificity (89.6) whilst the clinical test had 65% agreement with electrooculography and showed poor sensitivity (27.3%) and good specificity (79.3%). There was an 82.5% agreement between investigators for the formal video taped measure.

CONCLUSIONS:

Visual analysis of assessment of SPNT is sufficient for detecting SPNT abnormalities in patients with INP. Accuracy of the clinical method could be improved by, altering how the visual stimulus is presented and including subjective reporting of symptoms to aid diagnosis resulting in implications for future research.

10 B. CERVICAL EXERCISES**Cervical flexion**

Physiother Theory Pract. 2018 Jan 24:1-10. doi: 10.1080/09593985.2018.1430876.

Effects of the craniocervical flexion and isometric neck exercise compared in patients with chronic neck pain: A randomized controlled trial.

Chung S¹, Jeong YG².

INTRODUCTION:

The present study compared the effects of neck isometric exercise (NIE) and craniocervical flexion exercise (CFE) on cervical lordosis, muscle endurance of cervical flexion, neck disability index (NDI), and active cervical range of motion (ACROM) in all three planes in patients with non-specific, chronic neck pain (CNP).

MATERIALS AND METHODS:

Forty-one patients from a university hospital-based rehabilitation center were randomly assigned to an experimental (22 patients performing CFE) or control (19 patients performing NIE) group. All patients performed three 30-second repetitions of stretching exercises for the neck flexor, extensor, lateral flexor, and rotator as warm-up and cool-down exercises. The patients in the experimental group then underwent CFE 30 minutes/day, 3 times a week, for 8 weeks, while the control group underwent NIE. The main outcome measures were pain on visual analogue scale (VAS) and perceived disability based on the neck disability index (NDI). The secondary outcomes were cervical lordosis measured by an absolute rotation angle (ARA), muscle endurance of cervical flexion, and ACROM.

RESULTS:

Both groups showed improved pain, NDI, endurance of the cervical flexor muscles, and ACROM in all three planes after 8 weeks ($p < 0.001$ for all). All these outcomes, except for the NDI, showed significantly greater improvements following CFE than following NIE ($p < 0.05$ for all). In particular, a significantly improved ARA of cervical lordosis was found following CFE but not following NIE ($p < 0.05$).

CONCLUSIONS:

CFE targeted at retraining the craniocervical flexor muscles was useful for improving or restoring the pain, cervical lordosis, and neck-related function disorders among patients with non-specific CNP.

12 B. CERVICAL SURGERIES**Fusion vs conservative**

Int J Surg. 2018 Jan 30. pii: S1743-9191(18)30511-9. doi: 10.1016/j.ijisu.2018.01.033.

Comparison between cervical disc arthroplasty and conservative treatment for patients with single level cervical radiculopathy at C5/6.

He A¹, Xie D¹, Qu B¹, Cai X¹, Kong Q¹, Yang L², Chen X¹, Jia L¹.

BACKGROUND:

Cervical radiculopathy is a common disease that affects millions of people. Patients usually are managed by conservative therapy and surgical treatments.

OBJECTIVE:

To compare the clinical outcomes between cervical disc arthroplasty (CDA) and conservative management for patients with single level cervical radiculopathy at C5/6.

METHODS:

Seventy-two patients with cervical radiculopathy that only affect C5/6 joints were included and thirty-two of them received CDA surgery, and forty patients were treated with conservative management. All the patients were followed up around 4 years. Cervical curvature, cervical range of motion (CROM), horizontal displacement of cervical spine, and intervertebral gap were measured by radiological examination.

RESULTS:

All the patients have comparable disease severity based on pre-surgical radiological assessments. At the 4-year follow-up examination, patients with CDA surgery had less CROM at C5/6 level, while greater CROM at C4/5 level, than control group. Similarly, the horizontal displacement in CDA group decreased at C5/6 vertebrae, and increased at C4/5 level at the 4-year follow-up examination. The intervertebral gaps of patients in CDA group were larger than control group at one-year and last follow-up examination.

CONCLUSION:

CDA surgery stabilized C5/6 vertebrae and increased the CROM and horizontal displacement of upper adjacent C4/5 vertebrae.

13 B. TMJ/ORAL**Cavities worse with combination of starch and sweet****Starch Combined with Sucrose Provokes Greater Root Dentine Demineralization than Sucrose Alone.**

Souza SE, et al. Caries Res. 2018.

Abstract

Since there is no consensus about whether starch increases the cariogenic potential of sucrose, we used a validated 3-species biofilm model to evaluate if starch combined with sucrose provokes higher root dentine demineralization than sucrose alone.

Biofilms (n = 18) composed by *Streptococcus mutans* (the most cariogenic bacteria), *Actinomyces naeslundii* (which has amylolytic activity), and *Streptococcus gordonii* (which binds salivary amylase) were formed on root dentine slabs under exposure 8 x/day to one of the following treatments: 0.9% NaCl, 1% starch, 10% sucrose, or a combination of 1% starch and 10% sucrose. Before each treatment, biofilms were pretreated with human whole saliva for 1 min. The pH of the culture medium was measured daily as an indicator of biofilm acidogenicity. After 96 h of growth, the biofilms were collected, and the biomass, bacteria viability, and polysaccharides were analyzed. Dentine demineralization was assessed by surface hardness loss (% SHL). Biofilm bioarchitecture was analyzed using confocal laser scanning microscopy. Treatment with a starch and sucrose combination provoked higher (p = 0.01) dentine demineralization than sucrose alone (% SHL = 53.2 ± 7.0 vs. 43.2 ± 8.7). This was supported by lower pH values (p = 0.007) of the culture medium after daily exposure to the starch and sucrose combination compared with sucrose (4.89 ± 0.29 vs. 5.19 ± 0.32). Microbiological and biochemical findings did not differ between biofilms treated with the combination of starch and sucrose and sucrose alone (p > 0.05).

Our findings give support to the hypothesis that a starch and sucrose combination is more cariogenic for root dentine than sucrose alone.

17. SHOULDER GIRDLE

Eccentric exercise for Subacromial pain

J Hand Ther. 2018 Jan 9. pii: S0894-1130(17)30251-X. doi: 10.1016/j.jht.2017.11.041.

Pain, motion and function comparison of two exercise protocols for the rotator cuff and scapular stabilizers in patients with subacromial syndrome.

Vallés-Carrascosa E¹, Gallego-Izquierdo T¹, Jiménez-Rejano JJ², Plaza-Manzano G³, Pecos-Martín D¹, Hita-Contreras F⁴, Achalandabaso Ochoa A⁵.

STUDY DESIGN:

Randomized clinical trial.

INTRODUCTION:

Eccentric exercise (EE) was shown to be an effective treatment in tendinopathies. However, the evidence of its effectiveness in subacromial syndrome (SS) is scarce. Moreover, consensus has not been reached on whether best results for SS are obtained by means of EE with or without pain.

PURPOSE OF THE STUDY:

The purpose of this is to compare the effect on pain, active range of motion (AROM), and shoulder function of an exercise protocol performed with pain <40 mm Visual Analog Scale (VAS) and without pain, in patients with SS.

METHODS:

Twenty-two subjects (mean age: 59 years [Q1 = 48.50-Q3 = 70], 54.5% women) were randomized into a not-painful EE group (NPEE; G0: n = 11) and a painful EE group (PEE; G1: n = 11). The intervention lasted 4 weeks. Pain was recorded using VAS; AROM was measured using a goniometer; and shoulder function using the modified Constant-Murley Score (CMS) before and after intervention.

RESULTS:

All dependent variables improved significantly in both groups ($P < .05$): NPEE VAS median: pretest = 55.0 posttest = 28.0; CMS median: pretest = 36.0 posttest = 65.0. PEE VAS median: pretest = 37.0 posttest = 12.0; CMS median: pretest = 35.0 posttest = 59.0. The comparison between groups showed no significant differences, with small effect size values (VAS = 0.09; CMS = 0.21; AROM = 0.12-0.43).

DISCUSSION:

In contrast to the previous findings, our results suggest that PEE do not add benefit in SS patients compared to NPEE.

CONCLUSION:

Our results suggest that both interventions are effective in terms of pain, function, and shoulder AROM. Furthermore, PEE does not provide greater benefits. Further studies are needed with long-term follow-up to reinforce these results.

Subacromial decompression surgeries

Arthroscopic subacromial decompression for subacromial shoulder pain (CSAW): a multicentre, pragmatic, parallel group, placebo-controlled, three-group, randomised surgical trial

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Background Arthroscopic sub-acromial decompression (decompressing the sub-acromial space by removing bone spurs and soft tissue arthroscopically) is a common surgery for subacromial shoulder pain, but its effectiveness is uncertain. We did a study to assess its effectiveness and to investigate the mechanism for surgical decompression.

Methods We did a multicentre, randomised, pragmatic, parallel group, placebo-controlled, three-group trial at 32 hospitals in the UK with 51 surgeons. Participants were patients who had subacromial pain for at least 3 months with intact rotator cuff tendons, were eligible for arthroscopic surgery, and had previously completed a non-operative management programme that included exercise therapy and at least one steroid injection. Exclusion criteria included a full-thickness torn rotator cuff. We randomly assigned participants (1:1:1) to arthroscopic subacromial decompression, investigational arthroscopy only, or no treatment (attendance of one reassessment appointment with a specialist shoulder clinician 3 months after study entry, but no intervention). Arthroscopy only was a placebo as the essential surgical element (bone and soft tissue removal) was omitted. We did the randomisation with a computer-generated minimisation system. In the surgical intervention groups, patients were not told which type of surgery they were receiving (to ensure masking). Patients were followed up at 6 months and 1 year after randomisation; surgeons coordinated their waiting lists to schedule surgeries as close as possible to randomisation. The primary outcome was the Oxford Shoulder Score (0 [worst] to 48 [best]) at 6 months, analysed by intention to treat. The sample size calculation was based upon a target difference of 4.5 points (SD 9.0). This trial has been registered at ClinicalTrials.gov, number NCT01623011.

Findings Between Sept 14, 2012, and June 16, 2015, we randomly assigned 313 patients to treatment groups (106 to decompression surgery, 103 to arthroscopy only, and 104 to no treatment). 24 [23%], 43 [42%], and 12 [12%] of the decompression, arthroscopy only, and no treatment groups, respectively, did not receive their assigned treatment by 6 months. At 6 months, data for the Oxford Shoulder Score were available for 90 patients assigned to decompression, 94 to arthroscopy, and 90 to no treatment. Mean Oxford Shoulder Score did not differ between the two surgical groups at 6 months (decompression mean 32.7 points [SD 11.6] *vs* arthroscopy mean 34.2 points [9.2]; mean difference -1.3 points (95% CI -3.9 to 1.3, $p=0.3141$). Both surgical groups showed a small benefit over no treatment (mean 29.4 points [SD 11.9], mean difference *vs* decompression 2.8 points [95% CI 0.5-5.2], $p=0.0186$; mean difference *vs* arthroscopy 4.2 [1.8-6.6], $p=0.0014$) but these differences were not clinically important. There were six study-related complications that were all frozen shoulders (in two patients in each group).

Interpretation Surgical groups had better outcomes for shoulder pain and function compared with no treatment but this difference was not clinically important. Additionally, surgical decompression appeared to offer no extra benefit over arthroscopy only. The difference between the surgical groups and no treatment might be the result of, for instance, a placebo effect or postoperative physiotherapy. The findings question the value of this operation for these indications, and this should be communicated to patients during the shared treatment decision-making process.

Introduction Painful shoulders pose a substantial socioeconomic burden,¹ accounting for 2.4% of all primary care consultations in the UK² and 4.5 million visits to physicians annually in the USA.³ Subacromial pain accounts for up to 70% of all shoulder-pain problems⁴ and can impair the ability to work or do household tasks.^{5, 6} The mean annual total cost of treating patients with shoulder pain is estimated as €4139, with costs for sick leave and secondary care substantially adding to total costs.⁷

Model of subacromial pain management

Musculoskelet Sci Pract. 2018 Feb;33:24-28. doi: 10.1016/j.msksp.2017.10.008. Epub 2017 Oct 17.

Subacromial impingement syndrome - What does this mean to and for the patient? A qualitative study.

Cuff A¹, Littlewood C².

BACKGROUND:

Structured exercise has been reported as the current treatment of choice for patients diagnosed with subacromial impingement syndrome (SIS). However, it has been suggested that this diagnostic term and the language used to explain this condition might negatively influence patient expectations and serve as a barrier to engagement with exercise, hence compromising clinical outcomes.

AIM:

To explore how patients rationalise their shoulder pain following a diagnosis of SIS and how this understanding might impact on their perception of physiotherapy and engagement with exercise.

DESIGN:

A qualitative study using semi-structured interviews and analysed using the Framework method.

SETTING:

One NHS Physiotherapy department in South Yorkshire, England.

PARTICIPANTS:

Nine patients diagnosed with SIS were purposively sampled from those referred to the outpatient physiotherapy department by the orthopaedic team (consultant surgeons and registrars).

RESULTS:

Three main themes were generated: (1) The diagnostic experience, (2) Understanding of the problem, (3) Expectation of the treatment required; with one subtheme: (3b) Barriers to engagement with physiotherapy.

CONCLUSION:

The findings from this study suggest that diagnosis of shoulder pain remains grounded in a biomedical model. Understanding and explaining pain using the subacromial impingement model seems acceptable to patients but might have significant implications for engagement with and success of physiotherapy. It is suggested that clinicians should be mindful of the terminology they use and consider its impact on the patient's treatment pathway with the aim of doing no harm with the language used.

Subacromial pain and scapula focused care**Scapular focused interventions to improve shoulder pain and function in adults with subacromial pain: A systematic review and meta-analysis**

Hiroki Saito , BSc Physio, MClin Physio (Manips), Meg E. Harrold , BSc Physio, PhD, Vinicius Cavalheri , BSc Physio, MSc, PhD & Leanda McKenna , B.App.Sc (Physio), Master of Sports Physiotherapy, PhD

<https://doi.org/10.1080/09593985.2018.1423656>

ABSTRACT

The relationship between subacromial pain syndrome (SAPS) and altered scapular movement has been previously reported. The purpose of this review was to determine the effect of interventions that focus on addressing scapular components to improve shoulder pain, function, shoulder range of motion (ROM), and muscle strength in adults with SAPS. Databases searched in September 2016 were: PubMed, the Cochrane Central Register of Controlled Trials [Central], EMBASE [via Ovid] and PEDro. All studies selected for this review were randomized controlled trials. In total, six studies met the inclusion criteria and were included in the meta-analyses. In adults with SAPS, scapular focused interventions significantly improved pain with activities (MD [95% CI] = -0.88 [-1.19 to -0.58], I^2 43%) and shoulder function (-11.31 [-17.20 to -5.41] I^2 65%) in the short term. No between-group difference in shoulder pain and function were found at follow up (4 weeks). A between-group difference in shoulder abduction ROM in the short term only was found (12.71 [7.15 to 18.26] $^{\circ}$, I^2 36%). No between-group difference in flexion ROM, supraspinatus muscle strength, pectoralis minor length or forward shoulder posture were found. In conclusion, in adults with SAPS, scapular focused interventions can improve short-term shoulder pain and function.

19. GLENOHUMERAL/SHOULDER**Posterior capsule stretches**

Physiother Theory Pract. 2018 Feb;34(2):111-120. doi: 10.1080/09593985.2017.1376020. Epub 2017 Sep 13.

The efficacy of stretching exercises to reduce posterior shoulder tightness acutely in the postoperative population: a single blinded randomized controlled trial.

Salamh PA¹, Kolber MJ², Hegedus EJ³, Cook CE¹.

BACKGROUND:

Posterior shoulder tightness (PST) is a postoperative complication leading to pain, impaired mobility, and reduced function. Despite the potential morbidity associated with PST, no studies have investigated the efficacy of shoulder-stretching methods in the postsurgical population. The purpose of this study was to determine the short-term efficacy of two stretches designed to reduce PST.

METHODS:

The study enrolled 63 patients [mean age 51 (12) years, height 173.7 (3.6) cm, body mass 88.2 (17.9) kg]. The study was a single-blinded randomized control trial in which patients who had arthroscopic shoulder surgery were assigned to one of three groups: [(horizontal adduction stretch (n = 21), supine sleeper (n = 21), or control (n = 21)]. Dependent variables included measurements of internal rotation mobility, sidelying PST, pain, and the QuickDASH. Following the physical therapy (PT) initial evaluation, subjects were instructed to perform the allocated intervention twice daily until their first follow-up appointment 48-72 h following the initial PT visit.

RESULTS:

Between group analyses of dependent variables revealed significant differences within PST measurements ($p = 0.005$) ($\eta^2 = 0.14$) taken at baseline and follow-up (48-72 h) favoring horizontal adduction stretching. Post-hoc testing demonstrated superiority of horizontal adduction stretching over both the supine sleeper group ($p = 0.01$) and control ($p = 0.002$).

DISCUSSION AND CONCLUSION:

The horizontal adduction stretch is more effective at reducing acute PST in the postoperative shoulder population when compared to the supine sleeper stretch and no stretch at all. Knowledge of efficacious stretching methods may serve to reduce the potential morbidity associated with postoperative stiffness.

32 A. KNEE/ACL**Achilles tendon**

Knee Surg Sports Traumatol Arthrosc. 2018 Feb 9. doi: 10.1007/s00167-018-4843-4.

Short- to mid-term outcomes of anatomic MCL reconstruction with Achilles tendon allograft after multiligament knee injury.

Barrett IJ¹, Krych AJ¹, Pareek A¹, Johnson NR¹, Dahm DL¹, Stuart MJ¹, Levy BA².

PURPOSE:

Multiple techniques have been described in the literature for reconstruction of the medial collateral ligament. The purpose of this study is to describe functional outcome, range of motion, and knee stability following anatomic MCL reconstruction utilizing an Achilles tendon bone allograft after multiligament knee injury.

METHODS:

A comprehensive search of a single-hospital multiligament knee injury (MLKI) procedural database was conducted to identify all patients that underwent reconstruction of the MCL utilizing an Achilles tendon bone allograft and with 2-year clinical follow-up. Medical charts were retrospectively reviewed to determine each patient's knee dislocation (KD) grade, final range of motion, stability on clinical examination, and the incidence of complications and reoperations. KOOS, IKDC, and Marx scores were also collected.

RESULTS:

Thirty-two knees in 32 patients (21 males and 11 females) with a mean age of 30 years (range 15-51) were followed for an average of 40 months (range 28-87 months) following MCL reconstruction with Achilles tendon bone allograft. For patients with multiligament knee injuries, there were 14 KD-I (11 ACL/MCL; 3 MCL/PCL; 1 MCL/ACL/LCL; 1 MCL/PCL/LCL), 12 KD 3-M, and 3 KD-IV. One patient underwent isolated revision MCL reconstruction. At final follow-up, clinically significant valgus laxity was observed in only 1 patient (3%). All patients were able to achieve full extension of the knee and the average flexion was 121.1 ± 19.6 . The average IKDC score was 67.6 ± 19.9 (range 27.7-98.9), the average KOOS score 77.1 ± 16.8 (range 31-100). The average Marx score was 4.9 (range 0-16, SD 5.2). Thirty-one of 32 (96%) patients reported being satisfied with results of the surgery. Knee dislocation grades were significantly correlated with post-operative outcome measures.

CONCLUSION:

In a series utilizing a modified Marx Achilles tendon, MCL reconstruction in the setting of MLKI demonstrated satisfactory clinical and functional outcomes, as well as patient satisfaction at short- to mid-term follow-up. Furthermore, knee dislocation grades were demonstrated to correlate with post-operative IKDC, KOOS, and Marx scores.

33. MENISCUS

Conservative care

Br J Sports Med. 2018 Feb 2. pii: bjsports-2017-098429. doi: 10.1136/bjsports-2017-098429.

Risk factors, diagnosis and non-surgical treatment for meniscal tears: evidence and recommendations: a statement paper commissioned by the Danish Society of Sports Physical Therapy (DSSF).

Thorlund JB¹, Juhl CB^{1,2}, Ingelsrud LH^{1,3}, Skou ST^{1,4}.

This statement aimed at summarising and appraising the available evidence for risk factors, diagnostic tools and non-surgical treatments for patients with meniscal tears. We systematically searched electronic databases using a pragmatic search strategy approach. Included studies were synthesised quantitatively or qualitatively, as appropriate. Strength of evidence was determined according to the Grading of Recommendations Assessment Development and Evaluation framework. Low-quality evidence suggested that overweight (degenerative tears, k=3), male sex (k=4), contact and pivoting sports (k=2), and frequent occupational kneeling/squatting (k=3) were risk factors for meniscal tears. There was low to moderate quality evidence for low to high positive and negative predictive values, depending on the underlying prevalence of meniscal tears for four common diagnostic tests (k=15, n=2474). Seven trials investigated exercise versus surgery (k=2) or the effect of surgery in addition to exercise (k=5) for degenerative meniscal tears. There was moderate level of evidence for exercise improving self-reported pain (Effect Size (ES)-0.51, 95% CI -1.16 to 0.13) and function (ES -0.06, 95% CI -0.23 to 0.11) to the same extent as surgery, and improving muscle strength to a greater extent than surgery (ES -0.45, 95% CI -0.62 to -0.29). High-quality evidence showed no clinically relevant effect of surgery in addition to exercise on pain (ES 0.18, 95% 0.05 to 0.32) and function (ES, 0.13 95% CI -0.03 to 0.28) for patients with degenerative meniscal tears. No randomised trials comparing non-surgical treatments with surgery in patients younger than 40 years of age or patients with traumatic meniscal tears were identified. Diagnosis of meniscal tears is challenging as all clinical diagnostic tests have high risk of misclassification. Exercise therapy should be recommended as the treatment of choice for middle-aged and older patients with degenerative meniscal lesions. Evidence on the best treatment for young patients and patients with traumatic meniscal tears is lacking.

37. OSTEOARTHRITIS/KNEE

HA helps

Efficacy and safety of repeated courses of hyaluronic acid injections for knee osteoarthritis: A systematic review

Seminars in Arthritis and Rheumatism — | January 23, 2018

Altman R, et al.

This trial was formulated in order to gauge the efficacy and safety of repeated courses of intra-articular-hyaluronic acid (IA-HA) injection therapy in individuals with knee osteoarthritis (OA). Yielded data demonstrated the effectiveness and safety of repeated courses of IA-HA injections for knee OA. Maintenance and additional improvement were achieved in the pain reduction through repeat courses, with no increased safety risk.

Mg intake**Low Magnesium Intake is Associated With Increased Knee Pain in Subjects with Radiographic Knee Osteoarthritis: Data From the Osteoarthritis Initiative☆**

Dr. Anna Shmagel, MD MSc (Assistant Professor) Dr. Naoko Onizuka, MD PhD MPH r. Lisa Langsetmo, PhD Tien Vo, MS Dr. Robert Foley, MD (Associate Professor) Dr. Kristine Ensrud, MD MPH Dr. Peter Valen, MD

DOI: <https://doi.org/10.1016/j.joca.2018.02.002>

Summary**Objective**

As magnesium mediates bone and muscle metabolism, inflammation, and pain signaling, we aimed to evaluate whether magnesium intake is associated with knee pain and function in radiographic knee osteoarthritis.

Methods

We investigated the associations between knee pain/function metrics and magnesium intake from food and supplements in 2548 Osteoarthritis Initiative cohort participants with prevalent radiographic knee OA (Kellgren-Lawrence score ≥ 2). Magnesium intake was assessed by Food Frequency Questionnaire at baseline. WOMAC and KOOS scores were reported annually with total follow up of 48 months. Analyses used linear mixed models.

Results

Among participants with baseline radiographic knee OA the mean total magnesium intake was 309.9 mg/day (SD 132.6) for men, and 287.9 mg/day (SD 118.1) for women, with 68% of men and 44% of women below the estimated average requirement. Subjects with lower magnesium intake had worse knee OA pain and function scores, throughout the 48 months ($p < 0.001$). After adjustment for age, sex, race, BMI, calorie intake, fiber intake, pain medication use, physical activity, renal insufficiency, smoking, and alcohol use, lower magnesium intake remained associated with worse pain and function outcomes (1.4 points higher WOMAC and 1.5 points lower KOOS scores for every 50 mg of daily magnesium intake, $p < 0.05$). Fiber intake was an effect modifier (p for interaction < 0.05). The association between magnesium intake and knee pain and function scores was strongest among subjects with low fiber intake.

Conclusion

Lower magnesium intake was associated with worse pain and function in knee OA, especially among individuals with low fiber intake.

45 A. MANUAL THERAPY LUMBAR & GENERAL**Movement during**

Spine J. 2018 Jan 31. pii: S1529-9430(18)30010-X. doi: 10.1016/j.spinee.2018.01.008.

Does the application site of spinal manipulative therapy alter spinal tissues loading?

Funabashi M¹, Nougrou F², Descarreaux M³, Prasad N⁴, Kawchuk GN⁵.

BACKGROUND CONTEXT:

Previous studies found that the intervertebral disc (IVD) experiences the greatest loads during spinal manipulation therapy (SMT).

PURPOSE:

Based on that, this study aimed to determine if loads experienced by spinal tissues are significantly altered when the application site of SMT is changed.

STUDY DESIGN:

A biomechanical robotic serial dissection study.

SAMPLE:

Thirteen porcine cadaveric motion segments.

OUTCOME MEASURES:

Forces experienced by lumbar spinal tissues.

METHODS:

A servo-controlled linear actuator provided standardized 300 N SMT simulations to six different cutaneous locations of the porcine lumbar spine: L2-L3 and L3-L4 facet joints (FJ), L3 and L4 transverse processes (TVP), and the space between the FJs and the TVPs (BTW). Vertebral kinematics were tracked optically using indwelling bone pins; the motion segment was removed and mounted in a parallel robot equipped with a six-axis load cell. Movements of each SMT application at each site were replayed by the robot with the intact specimen and following the sequential removal of spinal ligaments, FJs and IVD. Forces induced by SMT were recorded, and specific axes were analyzed using linear mixed models.

RESULTS:

Analyses yielded a significant difference ($p < .05$) in spinal structures loads as a function of the application site. Spinal manipulative therapy application at the L3 vertebra caused vertebral movements and forces between L3 and L4 spinal segment in the opposite direction to when SMT was applied at L4 vertebra. Additionally, SMT applications over the soft tissue between adjacent vertebrae significantly decreased spinal structure loads.

CONCLUSION:

Applying SMT with a constant force at different spinal levels creates different relative kinetics of the spinal segments and load spinal tissues in significantly different magnitudes.

45 B. MANUAL THERAPY CERVICAL

Safety

Musculoskelet Sci Pract. 2018 Feb;33:41-45. doi: 10.1016/j.msksp.2017.11.003. Epub 2017 Nov 3.

Considerations to improve the safety of cervical spine manual therapy.

Hutting N¹, Kerry R², Coppieters MW³, Scholten-Peeters GGM⁴.

Manipulation and mobilisation of the cervical spine are well established interventions in the management of patients with headache and/or neck pain. However, their benefits are accompanied by potential, yet rare risks in terms of serious adverse events, including neurovascular insult to the brain. A recent international framework for risk assessment and management offers directions in the mitigation of this risk by facilitating sound clinical reasoning. The aim of this article is to critically reflect on and summarize the current knowledge about cervical spine manual therapy and to provide guidance for clinical reasoning for cervical spine manual therapy.

45 D. MANUAL THERAPY EXTREMITIES

Fib head MWM

Physiother Theory Pract. 2018 Jan 24:1-8. doi: 10.1080/09593985.2018.1424979

Effect of mobilization with movement on lateral knee pain due to proximal tibiofibular joint hypomobility.

Anandkumar S¹, Miller J², J Werstine R³, Young S⁴.

This case report describes a 45-year-old female who presented with lateral knee pain over the right proximal tibiofibular joint (PTFJ) managed unsuccessfully with rest, medications, bracing, injection, and physiotherapy. Clinical diagnosis of PTFJ hypomobility was based on concordant symptom reproduction with palpatory tenderness, accessory motion testing, and restricted anterior glide of the fibula. Intervention consisted of Mulligan's mobilization with movement and taping over the right PTFJ with immediate improvements noticed in pain, range of motion, and function. The patient was seen twice a week and was discharged after four treatment sessions. A follow-up after 6 months revealed that the patient was pain free and fully functional.

48 A. STM**HA – Dry needling and Friction Massage****Dry needling versus friction massage to treat tension type headache: A randomized clinical trial☆**

Fahimeh Kamali Marzieh Mohamadi Leila Fakheri Fatemeh Mohammadnejad

DOI: <https://doi.org/10.1016/j.jbmt.2018.01.009>

Abstract

Tension type headache (TTH), the most common type of headache, is known to be associated with myofascial pain syndrome and the existence of myofascial trigger points. There are several treatment options for myofascial trigger points. In this study we compared the effectiveness of dry needling and friction massage to treat patients with TTH.

A convenience sample of 44 patients with TTH participated in this randomized clinical trial. The frequency and intensity of headache, pressure pain threshold at the trigger point site, and cervical range of motion were recorded. Then the participants were randomly assigned to one of two treatment groups for dry needling or friction massage, delivered in 3 sessions during 1 week. The participants were evaluated 48 h after the last treatment session. Analysis of covariance, paired *t*-test and Wilcoxon's test were used for statistical analysis.

The results showed that both treatment methods significantly reduced headache frequency and intensity, and increased pain threshold at the trigger points. However, neither treatment had any effect on cervical range of motion except for extension, which increased in the dry needling group. Between-group comparisons showed that dry needling increased pain threshold significantly more than friction massage. There were no significant differences between groups in any other outcome variables.

Dry needling and friction massage were equally effective in improving symptoms in patients with TTH. The decreases in frequency and intensity of headache were similar after both dry needling and friction massage.

48 B. TRIGGER POINTS NEEDLING/ACUPUNCTURE**Overhead athletes**

J Sport Rehabil. 2018 Jan 24;1-24. doi: 10.1123/jsr.2017-0207.

Comparison of Upper Trapezius and Infraspinatus Myofascial Trigger Point Therapy by Dry Needling in Overhead Athletes With Unilateral Shoulder Impingement Syndrome.

Kamali F^{1,2}, Sinaei E^{1,2}, Morovati M¹.

CONTEXT:

Chronic musculoskeletal disorders in shoulder joint are often associated with myofascial trigger points (MTrP), particularly in the upper trapezius (UT) muscle. Dry needling (DN) is a treatment of choice for myofascial pain syndrome. However, local lesions and severe post-needle soreness sometimes hamper the direct application of DN in the UT. Therefore, finding an alternative point of treatment seems useful in this regard.

OBJECTIVE:

To compare the efficacy of UT versus infraspinatus (ISP) DN on pain and disability of subjects with shoulder pain. We hypothesized that ISP DN could be as effective as the direct application of DN in UT MTrP.

DESIGN:

Single-blind randomized clinical trial.

SETTING:

Sports medicine physical therapy clinic.

PARTICIPANTS:

40 overhead athletes (age 36±16 yo; 20 females, 20 males) with unilateral shoulder impingement syndrome were randomly assigned to the UT DN (n=21) and ISP DN (n=19) groups.

INTERVENTION:

An acupuncture needle was directly inserted into the trigger point of UT muscle in the UT DN group and of ISP muscle in the ISP DN group. DN was applied in three sessions (2-day interval between sessions) for each group.

MAIN OUTCOME MEASURES:

Pain intensity (visual analog scale), pain pressure threshold (PPT) and disability in the arm, hand and shoulder (DASH) were assessed before and after the interventions.

RESULTS:

Pain and disability decreased significantly in both groups (P<0.001) and PPT increased significantly only in the ISP group (p=0.020). However, none of the outcome measures showed a significant inter-group difference after treatments (P>0.05).

CONCLUSIONS:

Application of DN for active MTrPs in the ISP can be as effective as direct DN of active MTrPs in the UT in improving pain and disability in athletes with shoulder pain, and may be preferred due to greater patient comfort in comparison with direct UT needling.

59. PAIN**Cortex changes****Altered Primary Motor Cortex Structure, Organization, and Function in Chronic Pain: A Systematic Review and Meta-Analysis**

Wei-Ju Chang Neil E. O'Connell Paula R. Beckenkamp Ghufuran Alhassani
Matthew B. Liston Siobhan M. Schabrun

DOI: <https://doi.org/10.1016/j.jpain.2017.10.007>

Highlights

- The evidence for primary motor cortex (M1) changes in chronic pain is conflicting.
- M1 long-interval intracortical inhibition was increased in chronic pain.
- Other measures of M1 changes in chronic pain were inconclusive.

Abstract

Chronic pain can be associated with movement abnormalities. The primary motor cortex (M1) has an essential role in the formulation and execution of movement. A number of changes in M1 function have been reported in studies of people with chronic pain. This review systematically evaluated the evidence for altered M1 structure, organization, and function in people with chronic pain of neuropathic and non-neuropathic origin. Database searches were conducted and a modified STrengthening the Reporting of OBservational studies in Epidemiology checklist was used to assess the methodological quality of included studies. Meta-analyses, including preplanned subgroup analyses on the basis of condition were performed where possible. Sixty-seven studies (2,290 participants) using various neurophysiological measures were included. There is conflicting evidence of altered M1 structure, organization, and function for neuropathic and non-neuropathic pain conditions. Meta-analyses provided evidence of increased M1 long-interval intracortical inhibition in chronic pain populations. For most measures, the evidence of M1 changes in chronic pain populations is inconclusive.

Perspective

This review synthesizes the evidence of altered M1 structure, organization, and function in chronic pain populations. For most measures, M1 changes are inconsistent between studies and more research with larger samples and rigorous methodology is required to elucidate M1 changes in chronic pain populations.

Genetics and neuropathic pain

Pain. 2018 Jan 18. doi: 10.1097/j.pain.0000000000001164.

A systematic review and meta-analysis of genetic risk factors for neuropathic pain.

Veluchamy A¹, Hébert HL¹, Meng W¹, Palmer CNA², Smith BH¹.

Neuropathic pain (NP) is an increasingly common chronic pain state and a major health burden, affecting approximately 7-10% of the general population.

Emerging evidence suggests that genetic factors could partially explain individual susceptibility to NP and the estimated heritability in twins is 37%. The aim of this study was to systematically review and summarize the studies in humans that have investigated the influence of genetic factors associated with NP. We conducted a comprehensive literature search and performed meta-analyses of all the potential genetic variants associated with NP. We reviewed 29 full-text articles and identified 28 genes that were significantly associated with NP, mainly involved in neurotransmission, immune response, and metabolism. Genetic variants in HLA genes, COMT, OPRM1, TNFA, IL6, and GCH1, were found to have an association with NP in more than one study. In the meta-analysis, polymorphisms in HLA-DRB1*13 (OR,2.96; CI,1.93-4.56), HLA-DRB1*04 (OR,1.40; CI, 1.02-1.93), HLA-DQB1*03 (OR,2.86; CI,1.57-5.21), HLA-A*33 (OR,2.32; CI,1.42-3.80), and HLA-B*44 (OR,3.17; CI,2.22-4.55) were associated with significantly increased risk of developing NP whereas HLA-A*02 (OR,0.64; CI,0.47-0.87) conferred reduced risk and neither rs1799971 in OPRM1 (OR, 0.55; CI, 0.27-1.11) nor rs4680 in COMT (OR, 0.95; CI, 0.81-1.13) were significantly associated with NP.

These findings demonstrate an important and specific contribution of genetic factors to the risk of developing NP. However, large-scale replication studies are required to validate these candidate genes. Our review also highlights the need for genome-wide association studies with consistent case definition to elucidate the genetic architecture underpinning NP.

Radiofrequency DRG

Human Dorsal Root Ganglion Pulsed radiofrequency treatment modulates cerebrospinal fluid lymphocytes and neuroinflammatory markers in chronic radicular pain

Brain, Behavior, and Immunity — 1 February 23, 2018

Das B, et al.

Researchers assessed the impact of Dorsal Root Ganglion (DRG) Pulsed radiofrequency (PRF) treatment on lymphocyte frequencies and secreted inflammatory markers in the cerebrospinal fluid (CSF) in patients with radicular pain. Furthermore, they correlated this with clinical outcome to determine clinical markers of chronic radicular pain. Findings lend support to the concept that chronic radicular pain is a centrally mediated neuroimmune phenomenon and the mechanism of action of DRG PRF treatment is immunomodulatory.

Pre-surgical pain beliefs

Int J Surg. 2018 Feb 17. pii: S1743-9191(18)30562-4. doi: 10.1016/j.ijssu.2018.02.032

Pre-surgery beliefs about pain and surgery as predictors of acute and chronic post-surgical pain: A prospective cohort study.

Wang Y¹, Liu Z¹, Chen S¹, Ye X¹, Xie W², Hu C³, Iezzi T⁴, Jackson T⁵.

BACKGROUND:

chronic pain post-surgical pain (CPSP) is common and has far-reaching negative consequences for patients, yet relatively few studies have evaluated the impact of both deficit- and resource-based beliefs about pain and surgery on subjective intensities of acute and chronic post-surgical pain.

METHOD:

To address this issue, a prospective cohort study was performed. 259 consecutive surgery patients from general surgery, gynecology, and thoracic departments completed a self-report battery of demographics, pain experiences, and psychological factors 24 h before surgery (T1) and provided follow-up pain intensity ratings 48 h-72 h after surgery (T2), and at a 4-month follow-up (T3).

RESULTS:

In the hierarchical regression model for acute post-operative pain intensity, pre-surgery pain self-efficacy beliefs made a significant unique contribution independent of all other pre-surgery and surgery-related factors (i.e., age, presence of pre-surgical pain, type of anesthesia, surgery duration). In the prediction model for intensity of chronic post-surgical pain, beliefs about long-term effects of surgery had a unique impact after controlling other significant pre-surgery and surgery influences (gender, education, surgery time).

CONCLUSION:

Results underscored the potential utility of considering specific pre-surgery pain- and surgery-related beliefs as factors that predict patient experiences of acute and chronic post-operative pain.

63. PHARMACOLOGY

NSAID'S increase risk of stroke and MI

Effect on risk of stroke and acute myocardial infarction of nonselective nonsteroidal anti-inflammatory drugs in patients with rheumatoid arthritis

The American Journal of Cardiology — | February 21, 2018

Chen YR, et al.

Rheumatoid arthritis (RA) patients who consumed selective and nonselective nonsteroidal anti-inflammatory drugs (NSAIDs) were examined for the risk of stroke and acute myocardial infarction (AMI) resulting from transient impacts of these agents. An increased risk of both stroke and AMI was noted in RA patients in association with the use of nonselective NSAIDs.