

ABSTRACTS

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2. LBP

Changing programs helps

J Eval Clin Pract. 2016 Jul 19. doi: 10.1111/jep.12595.

Evaluation of a rolling rehabilitation programme for patients with non-specific low back pain in primary care: an observational cohort study.

Arden K¹, Fatoye F², Yeowell G².
Author information

Abstract

AIM:

The Back Rehabilitation Programme (BRP) is a group exercise programme for patients with non-specific low back pain (NSLBP) that combines cognitive behavioural therapy principles and therapeutic exercise to empower patients to self-manage their condition. Poor attendance and high attrition rates resulted in changes to the format of the programme from a standard sequential approach to a continual rolling approach. The aim of this study was to evaluate the effectiveness of this new approach on patient outcomes and its impact on attendance rates.

METHOD:

A service evaluation, using a retrospective, observational cohort design, of all patients with NSLBP who attended the BRP during a 12-month period was undertaken. Outcome measures used were as follows: Bournemouth Questionnaire (BQ); fitness tests: sit to stand test, step test and walk test (taken at baseline and post programme); and attendance (taken post programme).

RESULTS:

Of the patients, 56% had an improved BQ score $\geq 47\%$, indicating a clinically significant change. Inferential testing showed statistically significant improvements in the BQ and all three fitness tests post programme ($P < 0.0001$). In total, 62 patients attended the rolling BRP, and 41 patients (66%) completed. Thus, the percentage of patients completing the new programme had doubled compared with the original standard programme.

CONCLUSION:

Patients with NSLBP who attended the continual rolling BRP show clinical and statistical improvements. The rolling format also appeared to enhance patient attendance. As such, the rolling BRP should be considered by practitioners as an effective management strategy when treating patients with NSLBP.

KEYWORDS: evaluation; health care; health services research
PMID: 27436337

LBP and ex

Physiotherapy. 2015 Sep 9. pii: S0031-9406(15)03817-1. doi: 10.1016/j.physio.2015.08.005.

Exercise prescription for non-specific chronic low back pain (NSCLBP): a qualitative study of patients' experiences of involvement in decision making.

Stenner R¹, Swinkels A², Mitchell T³, Palmer S⁴.
Author information

Abstract

BACKGROUND:

The culture of current clinical practice calls for collaboration between therapists and patients, sharing power and responsibility. This paper reports on the findings of a qualitative study of exercise prescription for patients with NSCLBP, taking into account issues such as decision making and how this accords with patient preferences and experiences.

OBJECTIVE:

To understand the treatment decision making experiences, information and decision support needs of patients with NSCLBP who have been offered exercise as part of their management plan.

DESIGN:

A qualitative study using a philosophical hermeneutic approach.

METHODS:

Semi-structured interviews with eight patients (including use of brief patient vignettes) was undertaken to explore their personal experiences of receiving exercise as part of the management of their NSCLBP, and their involvement in decisions regarding their care.

FINDINGS:

The findings provide a detailed insight into patients' perceptions and experiences of receiving exercise-based management strategies. Four themes were formed from the texts: (1) patients' expectations and patients' needs are not synonymous, (2) information is necessary but often not sufficient, (3) not all decisions need to be shared, and (4) wanting to be treated as an individual.

CONCLUSIONS:

Shared decision making did not appear to happen in physiotherapy clinical practice, but equally may not be what every patient wants. The overall feeling of the patients was that the therapist was dominant in structuring the interactions, leaving the patients feeling disempowered to question and contribute to the decision making.

KEYWORDS: Back pain; Exercise; Patient-centred care; Shared decision making
PMID: [26549600](https://pubmed.ncbi.nlm.nih.gov/26549600/)

Neuropathic pain

Spine (Phila Pa 1976). 2016 Aug 1;41(15):1224-31. doi: 10.1097/BRS.0000000000001553.

Prevalence and Location of Neuropathic Pain in Lumbar Spinal Disorders: Analysis of 1804 Consecutive Patients With Primary Lower Back Pain.

Orita S¹, Yamashita T, Ohtori S, Yonenobu K, Kawakami M, Taguchi T, Kikuchi S, Ushida T, Konno S, Nakamura M, Fujino K, Matsuda S, Yone K, Takahashi K.

Author information

Abstract

STUDY DESIGN:

A cross-sectional study of 1804 consecutive patients.

OBJECTIVE:

The aim of this study was to investigate the prevalence of pathological pain and its distribution features in patients with chronic lumbar spinal disorders.

SUMMARY OF BACKGROUND DATA:

Clinical spinal disorders can involve pathological neuropathic pain (NeP) as well as physiological nociceptive pain (NocP), as they have varied pathology, including spinal cord injury, stenosis, and compression. A study conducted by the Japanese Society for Spine Surgery and Related Research (JSSR) has determined a prevalence of 29.4% for NeP in patients with lumbar spinal disorder. However, the data did not include information on pain location.

METHODS:

Patients aged 20 to 79 years with chronic lower back pain (≥ 3 months, visual analog scale score ≥ 30) were recruited from 137 JSSR-related institutions. Patient data included an NeP screening questionnaire score and pain location (lower back, buttock, and legs). The association between the pain pathology and its location was analyzed statistically using the unpaired t test and Chi-square test followed by Fisher test. $P < 0.05$ was considered significant.

RESULTS:

Low back pain subjects showed 31.9% of NeP prevalence, and the pain distribution showed [NocP(%)/NeP(%)] low back pain only cases: 44/22, while low back pain with leg pain cases showed a prevalence of 56/78. This indicates that low back pain alone can significantly induce NocP rather than NeP ($P < 0.01$). Buttock pain was revealed to significantly induce both lower back pain and leg pain with NeP properties ($P < 0.01$). Leg pain was revealed to be predominantly neuropathic, especially when it included peripheral pain ($P < 0.01$).

CONCLUSION:

Low back pain with no buttock pain induces NocP rather than NeP. Buttock pain is significantly associated with NeP prevalence whether or not leg pain exists. Leg pain can increase the prevalence of NeP, especially when it contains a peripheral element.

LEVEL OF EVIDENCE: 3.

PMID: [26967122](#)

7. PELVIC ORGANS/WOMAN'S HEALTH

Vit D and Depression in PG women

BMC Pregnancy Childbirth. 2016 Aug 3;16(1):203. doi: 10.1186/s12884-016-0988-7.

Vitamin D levels and perinatal depressive symptoms in women at risk: a secondary analysis of the mothers, omega-3, and mental health study.

Williams JA¹, Romero VC^{2,3}, Clinton CM⁴, Vazquez DM⁵, Marcus SM⁶, Chilimigras JL⁴, Hamilton SE⁶, Allbaugh LJ⁶, Vahratian AM⁴, Schrader RM⁷, Mozurkewich EL^{8,9}.
Author information

Abstract

BACKGROUND:

Vitamin D insufficiency may be associated with depressive symptoms in non-pregnant adults. We performed this study to evaluate whether low maternal vitamin D levels are associated with depressive symptoms in pregnancy.

METHODS:

This study was a secondary analysis of a randomized trial designed to assess whether prenatal omega-3 fatty acid supplementation would prevent depressive symptoms. Pregnant women from Michigan who were at risk for depression based on Edinburgh Postnatal Depression Scale Score or history of depression were enrolled. Participants completed the Beck Depression Inventory (BDI) and Mini International Neuropsychiatric Interview at 12-20 weeks, 26-28 weeks, 34-36 weeks, and 6-8 weeks postpartum. Vitamin D levels were measured at 12-20 weeks (N = 117) and 34-36 weeks (N = 112). Complete datasets were available on 105 subjects. Using regression analyses, we evaluated the relationship between vitamin D levels with BDI scores as well as with MINI diagnoses of major depressive disorder and generalized anxiety disorder. Our primary outcome measure was the association of maternal vitamin D levels with BDI scores during early and late pregnancy and postpartum.

RESULTS:

We found that vitamin D levels at 12-20 weeks were inversely associated with BDI scores both at 12-20 and at 34-36 weeks' gestation ($P < 0.05$, both). For every one unit increase in vitamin D in early pregnancy, the average decrease in the mean BDI score was .14 units. Vitamin D levels were not associated with diagnoses of major depressive disorder or generalized anxiety disorder.

CONCLUSIONS:

In women at risk for depression, early pregnancy low vitamin D levels are associated with higher depressive symptom scores in early and late pregnancy. Future investigations should study whether vitamin D supplementation in early pregnancy may prevent perinatal depressive symptoms.

TRIAL REGISTRATION:

<https://clinicaltrials.gov/>

REGISTRATION NUMBER:

NCT00711971.

KEYWORDS: Depression; Pregnancy; Vitamin D

PMID: [27485050](https://pubmed.ncbi.nlm.nih.gov/27485050/)

Reduced fetal movement

BMC Pregnancy Childbirth. 2016 Jul 19;16(1):169. doi: 10.1186/s12884-016-0964-2.

Perinatal outcomes of reduced fetal movements: a cohort study.

McCarthy CM¹, Meaney S², O'Donoghue K³.

Author information

Abstract

BACKGROUND:

The perception of reduced fetal movement (RFM) is an important marker of fetal wellbeing and is associated with poor perinatal outcome (such as intra-uterine death).

METHODS:

We conducted a prospective study of women presenting with RFM over 28 weeks' gestation to a tertiary-level maternity hospital. We examined pregnancy outcomes and compared them to a retrospectively collected control group delivering contemporaneously.

RESULTS:

In total, 275 presentations were analysed in the RFM group, with 264 in the control group. Women with RFM were more likely to be nulliparous ($p = 0.002$) and have an induction of labour ($p = 0.0011$). 26.5 % ($n = 73$) of cases were admitted following presentation with RFM, and 79.4 % ($n = 58$) delivered on primary presentation. Overall, 15.2 % ($n = 42$) women were induced for RFM specifically.

CONCLUSION:

This prospective study shows the increased burden of care required by those with RFM, including increased neonatal unit admission rates, increased induction rates and higher surveillance demands, demonstrating the need for increased attention to this area of practice.

KEYWORDS: Fetal movement; Kick counting; Perinatal outcome; Stillbirth

PMID: [27430891](#)

TOP and anxiety

Acta Obstet Gynecol Scand. 2016 Aug 8. doi: 10.1111/aogs.12959.

Anxiety and quality of life after first-trimester termination of pregnancy: a prospective study.

Toffol E¹, Pohjoranta E², Suhonen S³, Hurskainen R⁴, Partonen T¹, Mentula M², Heikinheimo O².
Author information

Abstract

INTRODUCTION:

Possible effects of termination of pregnancy (TOP) on mental health are a matter of debate.

MATERIAL AND METHODS:

We assessed anxiety and quality of life during one-year follow-up after first-trimester TOP using State-Trait Anxiety Inventory (STAI) Scale and EuroQoL Quality of Life Questionnaire (EQ-5D, EQ-VAS) in 742 women participating in a randomised controlled trial on early provision of intrauterine contraception. The measurements were performed before TOP, at three months and one year after TOP. Inclusion criteria were age ≥ 18 years, residence in Helsinki, duration of gestation < 12 weeks, non-medical indication for TOP, and approval of intrauterine contraception. The trial was registered with Clinical Trials [[NCT01223521](#)].

RESULTS:

When compared with baseline, the overall anxiety level was significantly lower and quality of life higher at three months and at one year. Reduction of anxiety and improvement of quality of life was especially evident ($p < 0.001$) in the 58% of women reporting clinically relevant anxiety at baseline. High levels of anxiety at baseline, history of psychiatric morbidity and smoking predicted significantly greater risk of poorer quality of life and elevated level of anxiety during the follow-up.

CONCLUSIONS:

TOP is associated with a significant overall reduction of anxiety and an improvement of quality of life among women undergoing it for non-medical indications. High baseline anxiety, history of psychiatric morbidity and smoking are risk factors of persistently high levels of anxiety and poor quality of life after an induced abortion. These data are important when designing and providing post-abortion care. This article is protected by copyright. All rights reserved.

KEYWORDS: Anxiety; contraception; induced abortion; quality of life; questionnaire
PMID: [27500660](#)

8. VISCERA

Gut bacteria linked to CFS

Microbiome. 2016 Jun 23;4(1):30. doi: 10.1186/s40168-016-0171-4.

Reduced diversity and altered composition of the gut microbiome in individuals with myalgic encephalomyelitis/chronic fatigue syndrome.

Giloteaux L¹, Goodrich JK^{1,2}, Walters WA^{1,2}, Levine SM³, Ley RE^{1,2}, Hanson MR⁴.

Author information

Abstract

BACKGROUND:

Gastrointestinal disturbances are among symptoms commonly reported by individuals diagnosed with myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS). However, whether ME/CFS is associated with an altered microbiome has remained uncertain. Here, we profiled gut microbial diversity by sequencing 16S ribosomal ribonucleic acid (rRNA) genes from stool as well as inflammatory markers from serum for cases (n = 48) and controls (n = 39). We also examined a set of inflammatory markers in blood: C-reactive protein (CRP), intestinal fatty acid-binding protein (I-FABP), lipopolysaccharide (LPS), LPS-binding protein (LBP), and soluble CD14 (sCD14).

RESULTS:

We observed elevated levels of some blood markers for microbial translocation in ME/CFS patients; levels of LPS, LBP, and sCD14 were elevated in ME/CFS subjects. Levels of LBP correlated with LPS and sCD14 and LPS levels correlated with sCD14. Through deep sequencing of bacterial rRNA markers, we identified differences between the gut microbiomes of healthy individuals and patients with ME/CFS. We observed that bacterial diversity was decreased in the ME/CFS specimens compared to controls, in particular, a reduction in the relative abundance and diversity of members belonging to the Firmicutes phylum. In the patient cohort, we find less diversity as well as increases in specific species often reported to be pro-inflammatory species and reduction in species frequently described as anti-inflammatory. Using a machine learning approach trained on the data obtained from 16S rRNA and inflammatory markers, individuals were classified correctly as ME/CFS with a cross-validation accuracy of 82.93 %.

CONCLUSIONS:

Our results indicate dysbiosis of the gut microbiota in this disease and further suggest an increased incidence of microbial translocation, which may play a role in inflammatory symptoms in ME/CFS.

KEYWORDS: Beta-diversity; Chronic fatigue syndrome; Inflammation; Lipopolysaccharides; Microbial translocation; Microbiome; Myalgic encephalomyelitis

PMID: 27338587

Crohn's helped by Vit. D3

Saudi J Gastroenterol. 2016 Jul-Aug;22(4):316-23. doi: 10.4103/1319-3767.187606.

A randomized controlled trial on the effect of vitamin D3 on inflammation and cathelicidin gene expression in ulcerative colitis patients.

Sharifi A¹, Hosseinzadeh-Attar MJ¹, Vahedi H², Nedjat S³.

Author information

Abstract

BACKGROUND:

Inflammatory bowel disease (IBD) is an intestinal chronic inflammatory condition and includes Crohn's disease (CD) and ulcerative colitis (UC). It has been proposed that Vitamin D supplementation may have a beneficial role in IBD.

AIM:

To characterize the effects of Vitamin D on cathelicidin (hCAP/LL37) gene expression, ESR, and serum hs-CRP levels.

MATERIALS AND METHODS:

Ninety UC patients on remission were randomized to receive 300,000 IU intramuscular Vitamin D or 1 mL normal saline as placebo, respectively. Before and 90 days after intervention, serum levels of 25 (OH)-Vitamin D3, PTH, Calcium, ESR, and hs-CRP were measured. Cathelicidin gene expression was also quantified using qRT-PCR.

RESULTS:

Baseline serum 25-OH-Vitamin D3 levels were not different between the two groups and after intervention, increased only in Vitamin D group ($P < 0.001$). Hs-CRP levels were lower in Vitamin D group after intervention (Before: 3.43 ± 3.47 vs 3.86 ± 3.55 mg/L, $P = 0.56$; after: 2.31 ± 2.25 vs 3.90 ± 3.97 mg/L, $P = 0.023$). ESR decreased significantly in Vitamin D group (Before: 12.4 ± 6.1 vs 12.1 ± 5.3 mm/h, $P = 0.77$; after: 6.7 ± 4.5 vs 11.4 ± 5.5 mm/h, $P < 0.001$). The mean fold change in hCAP18 gene expression in Vitamin D group was significantly higher than placebo group. (Mean \pm SD: 3.13 ± 2.56 vs 1.09 ± 0.56 ; median \pm interquartile range: 2.17 ± 3.81 vs 0.87 ± 0.53 , $P < 0.001$).

CONCLUSION:

Decreases in ESR and hs-CRP levels and increase in LL37 gene expression support the hypothesis that Vitamin D supplementation may have a beneficial role in UC patients.

Crohn's and fiber intake

Avoidance of Fiber Is Associated With Greater Risk of Crohn's Disease Flare in a 6-Month Period

Christopher A. Martin Millie D. Long Michael D. Kappelman Robert S. Sandler

Background & Aims

Chronic inflammatory bowel diseases (IBDs) have been associated with an abnormal mucosal response to the gastrointestinal microbiota. Although dietary fiber affects the gastrointestinal microbiota, there is limited information on the role of fiber on IBD activity. We investigated factors associated with fiber consumption and whether it was associated with flares in patients with IBD.

Methods

We collected a completed 26-item dietary survey from 1619 participants in the Crohn's and Colitis Foundation of America Partners Internet cohort (Crohn's disease, 1130; ulcerative colitis/indeterminate colitis, 489). Eligible individuals were in remission based on disease activity index at baseline and completed a follow-up survey 6 months later. Fiber and whole grain consumption were categorized into quartiles and deciles. Disease flare at 6 months was defined as a disease activity index score exceeding remission cutoff values, and/or an IBD-related surgical procedure or hospitalization since baseline.

Results

Participants with longer duration of disease, past history of surgery, and past IBD hospitalization ate less fiber. The risks for disease flare differed by disease type. Compared with those in the lowest quartile of fiber consumption, participants with Crohn's disease in the highest quartile were less likely to have a flare (adjusted odds ratios [OR], 0.58; 95% confidence interval [CI], 0.37–0.90). Participants with Crohn's disease who reported that they did not avoid high-fiber foods were ~40% less likely to have a disease flare than those who avoided high-fiber foods (adjusted OR, 0.59; 95% CI, 0.43–0.81). There was no association between fiber intake and flares in patients with ulcerative colitis (adjusted OR, 1.82; 95% CI, 0.92–3.60).

Conclusions

Intake of dietary fiber is associated with reduced disease flares in patients with Crohn's disease, but not UC. Recommendations to limit dietary fiber should be re-evaluated.

10 B. CERVICAL EXERCISES

Pilates vs. yoga

Physiotherapy. 2015 Aug 13. pii: S0031-9406(15)03808-0. doi: 10.1016/j.physio.2015.06.002.

Comparative effectiveness of Pilates and yoga group exercise interventions for chronic mechanical neck pain: quasi-randomised parallel controlled study.

Dunleavy K¹, Kava K², Goldberg A³, Malek MH⁴, Talley SA³, Tutag-Lehr V⁵, Hildreth J⁴.
Author information

Abstract

OBJECTIVES:

To determine the effectiveness of Pilates and yoga group exercise interventions for individuals with chronic neck pain (CNP).

DESIGN:

Quasi-randomised parallel controlled study.

SETTING:

Community, university and private practice settings in four locations.

PARTICIPANTS:

Fifty-six individuals with CNP scoring $\geq 3/10$ on the numeric pain rating scale for >3 months (controls n=17, Pilates n=20, yoga n=19).

INTERVENTIONS:

Exercise participants completed 12 small-group sessions with modifications and progressions supervised by a physiotherapist.

MAIN OUTCOME MEASURES:

The primary outcome measure was the Neck Disability Index (NDI). Secondary outcomes were pain ratings, range of movement and postural measurements collected at baseline, 6 weeks and 12 weeks. Follow-up was performed 6 weeks after completion of the exercise classes (Week 18).

RESULTS:

NDI decreased significantly in the Pilates {baseline: 11.1 [standard deviation (SD) 4.3] vs Week 12: 6.8 (SD 4.3); mean difference -4.3 (95% confidence interval -1.64 to -6.7); $P<0.001$ } and yoga groups [baseline: 12.8 (SD 7.4) vs Week 12: 8.1 (SD 5.6); mean difference -4.7 (95% confidence interval -2.1 to -7.4); $P<0.00$], with no change in the control group. Pain ratings also improved significantly. Moderate-to-large effect sizes (0.7 to 1.8) and low numbers needed to treat were found. There were no differences in outcomes between the exercise groups or associated adverse effects. No improvements in range of movement or posture were found.

CONCLUSIONS:

Pilates and yoga group exercise interventions with appropriate modifications and supervision were safe and equally effective for decreasing disability and pain compared with the control group for individuals with mild-to-moderate CNP. Physiotherapists may consider including these approaches in a plan of care.

CLINICAL TRIAL REGISTRATION NUMBER:

ClinicalTrials.gov [NCT01999283](https://clinicaltrials.gov/ct2/show/study/NCT01999283).

12 B. CERVICAL SURGERIES

Fusion and ROM

Spine (Phila Pa 1976). 2016 Aug 1;41(15):E915-22. doi: 10.1097/BRS.0000000000001502.

Comparison of Cervical Kinematics, Pain, and Functional Disability Between Single- and Two-level Anterior Cervical Discectomy and Fusion.

Chien A¹, Lai DM, Wang SF, Hsu WL, Cheng CH, Wang JL.
Author information

Abstract

STUDY DESIGN:

A prospective, time series design.

OBJECTIVE:

The purpose of this study is two-fold: firstly, to investigate the impact of altered cervical alignment and range of motion (ROM) on patients' self-reported outcomes after anterior cervical discectomy and fusion (ACDF), and secondly, to comparatively differentiate the influence of single- and two-level ACDF on the cervical ROM and adjacent segmental kinematics up to 12-month postoperatively.

SUMMARY OF BACKGROUND DATA:

ACDF is one of the most commonly employed surgical interventions to treat degenerative disc disease. However, there are limited in vivo data on the impact of ACDF on the cervical kinematics and its association with patient-reported clinical outcomes.

METHODS:

Sixty-two patients (36 males; 55.63±11.6 yrs) undergoing either a single- or consecutive two-level ACDF were recruited. The clinical outcomes were assessed with the Pain Visual Analogue Scale (VAS) and the Neck Disability Index (NDI). Radiological results included cervical lordosis, global C2-C7 ROM, ROM of the Functional Spinal Unit (FSU), and its adjacent segments. The outcome measures were collected preoperatively and then at 3, 6, and 12-month postoperatively.

RESULTS:

A significant reduction of both VAS and NDI was found for both groups from the preoperative to 3-month period ($P < 0.01$). Pearson correlation revealed no significant correlation between global ROM with neither VAS ($P = 0.667$) nor NDI ($P = 0.531$). A significant reduction of global ROM was identified for the two-level ACDF group at 12 months ($P = 0.017$) but not for the single-level group. A significant interaction effect was identified for the upper adjacent segment ROM ($P = 0.024$) but not at the lower adjacent segment.

CONCLUSION:

Current study utilized dynamic radiographs to comparatively evaluate the biomechanical impact of single- and two-level ACDF. The results highlighted that the two-level group demonstrated a greater reduction of global ROM coupled with an increased upper adjacent segmental compensatory motions that is independent of patient-perceived recovery.

13. CRANIUM/TMJ

Risk of stroke and sleep

Insomnia? Oversleeping? Both may increase your risk of stroke

American Academy of Neurology News, 08/05/2016

There is growing evidence that sleep disorders like insomnia and sleep apnea are related to stroke risk and recovery from stroke, according to a recent literature review. The review was published in the August 3, 2016, online issue of the journal *Neurology*. Based on the review, the authors recommend that people who have had a stroke or a mini-stroke, called a transient ischemic attack, be screened for sleep disorders. “Although sleep disorders are common after a stroke, very few stroke patients are tested for them,” said study author Dirk M. Hermann, MD, of University Hospital Essen in Essen, Germany. “The results of our review show that should change, as people with sleep disorders may be more likely to have another stroke or other negative outcomes than people without sleep problems, such as having to go to a nursing home after leaving the hospital.” The researchers also recommend that sleep apnea be treated with a continuous positive airway pressure machine (CPAP), based on evidence that shows that its use can improve outcomes after stroke. For the literature review, the researchers examined dozens of studies that looked at the link between sleep disturbances and stroke. They then combined the data of multiple studies in a meta-analysis. Sleep disorders generally fall into two categories: sleep breathing problems and sleep-wake disorders. Sleep breathing problems like sleep apnea disrupt breathing while asleep. Sleep-wake disorders like insomnia and restless leg syndrome affect the amount of time spent asleep. The review found evidence linking sleep breathing problems with stroke risk and recovery. Sleep-wake disorders may increase stroke risk and harm recovery, although there is less evidence to prove so. Due to this lack of evidence and to possible side effects, the researchers are cautious to recommend treatment of sleep-wake disorders with drugs.

Sleep disorders

Quintessence Int. 2016;47(7):617-21. doi: 10.3290/j.qi.a36172.

Sleep-related breathing disorders and dentistry: What is the relationship?

Santander P, Sievers D, Moser N.

Abstract

Non-restorative sleep has considerable consequences for daily life. A sleep disorder is recognized by symptoms such as daytime fatigue and performance or concentration disorders. Furthermore, it increases the risk of developing cardiovascular, metabolic, and neurologic diseases. The diagnosis and therapy of sleep disorders is not only in the sleep medicine doctor's hands. A multidisciplinary approach reflects the affected patients' choice. Dentists can make an important contribution, especially to the therapy of sleep-related breathing disorder.

PMID: [27319815](#)

[Cranial vault and mandible](#)

Orthod Craniofac Res. 2016 Aug 10. doi: 10.1111/ocr.12128.

Relationship between the cranial base and the mandible in artificially deformed skulls.

Ferros I¹, Mora MJ¹, Obeso IF¹, Jimenez P², Martinez-Insua A¹.

Author information

Abstract

OBJECTIVES:

There is controversy regarding the relationship between mandibular position and alterations of the cranial base that provoke a more anterior location of the glenoid fossa. Artificially deformed skulls display marked alterations of the cranial base. This study evaluates mandibular changes as function of the morphology of the cranial base in these skulls.

MATERIAL AND METHODS:

A geometric morphometric study was performed on lateral cephalometric X-rays of three groups of skulls: 32 with anteroposterior deformity, 17 with circumferential deformity and 39 with no apparent deformity.

RESULTS:

In artificially deformed skulls, the cranial base was deformed causing the mandibular condyle to be in a more anterior position. There was a complete remodelling of the mandible involving narrowing and elongation of the mandibular ramus, rotation of the corpus of the mandible and increased vertical height of the symphysis. Forward displacement did not occur. Integration between mandible and cranial base is not altered by deformation of the skull.

CONCLUSIONS:

Deformity of the cranial vault exerts an influence on the mandible, supporting the theory of modular units in complete integration. This also supports the theory that mandibular prognathism is a multifactorial result and not a direct effect of displacement of the cranial base.

KEYWORDS: deformed skull; geometric morphometric; mandible; skull base

PMID: [27506322](#)

Eur J Orthod. 2016 Aug;38(4):373-8. doi: 10.1093/ejo/cjv071. Epub 2015 Oct 7.

Critical roles of periostin in the process of orthodontic tooth movement.

Rangiani A¹, Jing Y², Ren Y², Yadav S³, Taylor R⁴, Feng JQ⁵.

Author information

Abstract

AIM:

The process of orthodontic tooth movement (OTM) involves multiple mechanisms of action including bone and extracellular matrix remodelling, although the role of periodontal ligament (PDL) in this process is largely unknown. Periostin, which is highly expressed in the PDL, is known to be responsible for mechanical stimulation in maintaining the integrity of periodontal tissues. We hypothesize that this protein plays an important role during OTM.

MATERIAL AND METHODS:

By using spring in 4-week-old wild-type (WT) and periostin null mice, the rate of tooth movement and mineralization were evaluated. For the evaluation, double labelling, expression of sclerostin (SOST), number of TRAP-positive cells, and quality of collagen fibrils by Sirius red were analysed and compared between these two groups.

RESULTS:

Our findings showed that the distance of the tooth movement and mineral deposition rates were significantly reduced in periostin null mice ($P < 0.05$), with a lack of expression changes in SOST as observed in the WT group. The arrangement, digestion, and integrity of collagen fibrils were impaired in periostin null mice. The number of osteoclasts reflected by expressions of TRAP (tartrate-resistant acid phosphatase) in the null mice was also significantly lower than the WT control ($P < 0.05$).

CONCLUSION:

Periostin plays a stimulatory role in both SOST and TRAP responses to OTM in the compression site, although it is not clear if this role is direct or indirect during orthodontic loading.

PMID:[26446403](#)

[Masticatory parameters](#)

Eur J Orthod. 2016 Aug;38(4):393-7. doi: 10.1093/ejo/cjv092. Epub 2015 Dec 14.

Evaluation of masticatory parameters in overweight and obese children.

Araujo DS¹, Marquezin MC¹, Barbosa Tde S¹, Gavião MB¹, Castelo PM².

Author information

Abstract

OBJECTIVES:

Mastication is an essential function that prepares the food for swallowing and digestion and may be related to nutritional status. Thus, the aims of this study were to evaluate the masticatory parameters in overweight and obese children and the relation between bite force and anthropometric evaluation, food consistency, breast/bottle-feeding, and occlusion.

MATERIALS AND METHODS:

The sample consisted of 204 children of both genders, age range 8-10 years, divided into normal weight, overweight, and obese. Unilateral bite force was measured using a digital gnatodynamometer with 10mm force fork. Anthropometric and nutritional evaluation involved the measurements of body mass index and skeletal muscle mass using bioelectric impedance analysis. Occlusion was evaluated as regards orthodontic treatment need and food consistency was analysed using a structured questionnaire. In addition, the time of breast- and bottle-feeding was investigated. The results were submitted to chi-square and correlation tests, analysis of variance, and multiple linear regression to determine the relation between bite force and the independent variables under study ($\alpha = 0.05$).

RESULTS:

Statistical analysis showed that the time of breast- and bottle-feeding and food consistency did not differ among groups. The regression model showed that body mass index, orthodontic treatment need, and body skeletal muscle mass contributed significantly to the variation in bite force.

CONCLUSIONS:

Breast- and bottle-feeding behaviour and food consistency did not differ in normal-weight, overweight, and obese children. However, bite force was dependent on body skeletal muscle mass, body mass index, and orthodontic treatment need.

PMID: [26671990](#)

Force on Periodontal lig.

Eur J Orthod. 2016 Aug;38(4):366-72. doi: 10.1093/ejo/cjv052. Epub 2015 Jul 23.

Investigation of optimal orthodontic force at the cellular level through three-dimensionally cultured periodontal ligament cells.

Li M¹, Yi J¹, Yang Y¹, Zheng W², Li Y³, Zhao Z¹.

Author information

Abstract

OBJECTIVES:

Optimal orthodontic force (OOF), important as it is, has generally been addressed at the level of tissue response. This study, for the first time, aimed to investigate its underlying mechanisms at the cellular level.

METHODS:

Human periodontal ligament tissue cells (PDLCs) were three-dimensionally (3D) cultured in a thin sheet of poly-lactic-co-glycolic acid (PLGA) scaffold. The 3D cultured PDLCs were treated with static compressive force of 0, 5, 15, and 25g/cm² for 6, 24, and 72 hours, respectively. After that, methylthiazolyl tetrazolium assay was done to evaluate the cell proliferation. The target gene expression in PDLCs was investigated through real-time PCR analysis. The conditioned media was collected for enzyme-linked immunosorbent assay (ELISA) assay, and also used for the coculture of osteoblasts and osteoclast precursors. Tartrate-resistant acid phosphatase (TRAP) staining was employed to examine osteoclasts.

RESULTS:

Compressive force inhibited proliferation of PDLCs in a magnitude-dependent manner. Heavier force upregulated expression of the osteoclastogenesis inducers, including RANKL, COX-2, PTHrP, and IL-11, more rapidly; however in the long run, no significant difference was found among different force magnitudes, either in the expression of osteoclastogenesis inducers by PDLCs, or in the osteoclast formation detected by TRAP staining.

LIMITATIONS:

The results regarding specific force magnitude as OOF should be confined to the present specific model, but not be extrapolated, without caution, to different in vitro models, nor even to in vivo studies or clinical application.

CONCLUSIONS:

Compared with heavier force, lighter force has similar pro-osteoclastogenic whilst less anti-proliferative effects on PDLCs, which provides a novel interpretation for OOF.

PMID:[26209366](#)

14. HEADACHES

Caffeine

J Headache Pain. 2016 Dec;17(1):71. doi: 10.1186/s10194-016-0662-5. Epub 2016 Aug 5.

Caffeine discontinuation improves acute migraine treatment: a prospective clinic-based study.

Lee MJ¹, Choi HA¹, Choi H², Chung CS³.

Author information

Abstract

BACKGROUND:

Caffeine has both excitatory and vasoconstrictive effects on central nervous system. Caffeine use might be associated with development and chronification of migraine. We aimed to evaluate the effect of caffeine cessation on the acute treatment of migraine.

METHODS:

We prospectively recruited migraine patients who consumed caffeine drinks daily and instructed them to discontinue their caffeine intake. Triptans were prescribed for acute treatment. Patients were followed up after at least two weeks after screening and evaluated the efficacy of acute treatment with the migraine assessment of current therapy (Migraine-ACT) questionnaire. Excellent efficacy was defined as Migraine-ACT score of 4. Chronic migraine, body mass index, allodynia, depression, anxiety, antiemetic use, and use of prophylactic medication were included in the multivariate analysis if the univariate $p < 0.2$.

FINDINGS:

Among 108 patients included, 36 completely discontinued their caffeine intake (abstinence group). The efficacy of acute treatment was assessed at median 34.5 days (interquartile range, 28-89) after the screening. Twenty-six patients (72.2 %) in the abstinence group and 29 (40.3 %) in the non-abstinence group reported an excellent efficacy ($p = 0.002$). The abstinence group also showed a trend toward greater reduction of headache impact test-6 (HIT-6) scores ($p = 0.085$). Caffeine abstinence was independently associated with an excellent efficacy of acute treatment (multivariate odds ratio, 3.2; 95 % confidence interval, 1.2-8.4; $p = 0.018$) after controlling for covariates.

CONCLUSIONS:

Caffeine abstinence is associated with better efficacy of acute migraine treatment. Our uncontrolled study results encourage a further confirmatory study on this issue.

KEYWORDS: Acute treatment; Caffeine; Migraine

PMID: [27492448](https://pubmed.ncbi.nlm.nih.gov/27492448/)

19. GLENOHUMERAL/SHOULDER

Stretching int. rot and Add

J Shoulder Elbow Surg. 2016 Jul 27. pii: S1058-2746(16)30114-8. doi: 10.1016/j.jse.2016.04.025.

Effects of two stretching methods on shoulder range of motion and muscle stiffness in baseball players with posterior shoulder tightness: a randomized controlled trial.

Yamauchi T¹, Hasegawa S², Nakamura M³, Nishishita S², Yanase K², Fujita K², Umehara J², Ji X², Ibuki S², Ichihashi N².

Author information

Abstract

BACKGROUND:

The cross-body stretch and sleeper stretch are widely used for improving flexibility of the posterior shoulder. These stretching methods were modified by Wilk. However, few quantitative data are available on the new, modified stretching methods. A recent study reported the immediate effects of stretching and soft tissue mobilization on the shoulder range of motion (ROM) and muscle stiffness in subjects with posterior shoulder tightness. However, the long-term effect of stretching for muscle stiffness is unknown. The objective of this study was to examine the effects of 2 stretching methods, the modified cross-body stretch (MCS) and the modified sleeper stretch (MSS), on shoulder ROM and muscle stiffness in baseball players with posterior shoulder tightness.

METHODS:

Twenty-four college baseball players with ROM limitations in shoulder internal rotation were randomly assigned to the MCS or MSS group. We measured shoulder internal rotation and horizontal adduction ROM and assessed posterior shoulder muscle stiffness with ultrasonic shear wave elastography before and after a 4-week intervention. Subjects were asked to perform 3 repetitions of the stretching exercises every day, for 30 seconds, with their dominant shoulder.

RESULTS:

In both groups, shoulder internal rotation and horizontal adduction ROM were significantly increased after the 4-week intervention. Muscle stiffness of the teres minor decreased in the MCS group, and that of the infraspinatus decreased in the MSS group.

CONCLUSIONS:

The MCS and MSS are effective for increasing shoulder internal rotation and horizontal adduction ROM and decreasing muscle stiffness of the infraspinatus or teres minor.

KEYWORDS:

Shear wave elastography; baseball; infraspinatus; modified cross-over stretching; modified sleeper stretching; posterior shoulder tightness; teres minor

PMID: [27475455](#)

33. MENISCUS

Surgery vs. conservative

Exercise therapy versus arthroscopic partial meniscectomy for degenerative meniscal tear in middle aged patients: randomised controlled trial with two year follow-up

BMJ 2016; 354 doi: <http://dx.doi.org/10.1136/bmj.i3740> Nina Jullum Kise, orthopaedic surgeon¹,

1. May Arna Risberg, physiotherapist and professor Silje Stensrud, physiotherapist Jonas Ranstam, Lars Engebretsen, orthopaedic Ewa M Roos, physiotherapist and professor⁸

Abstract

Objective To determine if exercise therapy is superior to arthroscopic partial meniscectomy for knee function in middle aged patients with degenerative meniscal tears.

Design Randomised controlled superiority trial.

Setting Orthopaedic departments at two public hospitals and two physiotherapy clinics in Norway.

Participants 140 adults, mean age 49.5 years (range 35.7-59.9), with degenerative medial meniscal tear verified by magnetic resonance imaging. 96% had no definitive radiographic evidence of osteoarthritis.

Interventions 12 week supervised exercise therapy alone or arthroscopic partial meniscectomy alone.

Main outcome measures Intention to treat analysis of between group difference in change in knee injury and osteoarthritis outcome score (KOOS4), defined a priori as the mean score for four of five KOOS subscale scores (pain, other symptoms, function in sport and recreation, and knee related quality of life) from baseline to two year follow-up and change in thigh muscle strength from baseline to three months.

Results No clinically relevant difference was found between the two groups in change in KOOS4 at two years (0.9 points, 95% confidence interval -4.3 to 6.1; P=0.72). At three months, muscle strength had improved in the exercise group (P≤0.004). No serious adverse events occurred in either group during the two year follow-up. 19% of the participants allocated to exercise therapy crossed over to surgery during the two year follow-up, with no additional benefit.

Conclusion The observed difference in treatment effect was minute after two years of follow-up, and the trial's inferential uncertainty was sufficiently small to exclude clinically relevant differences. Exercise therapy showed positive effects over surgery in improving thigh muscle strength, at least in the short term. Our results should encourage clinicians and middle aged patients with degenerative meniscal tear and no definitive radiographic evidence of osteoarthritis to consider supervised exercise therapy as a treatment option.

35. KNEE/TOTAL

Translation important

Knee Surg Sports Traumatol Arthrosc. 2016 Aug 2.

Anteroposterior translation and range of motion after total knee arthroplasty using posterior cruciate ligament-retaining versus posterior cruciate ligament-substituting prostheses.

Ishii Y¹, Noguchi H², Sato J², Sakurai T², Toyabe SI³.

Author information

Abstract

PURPOSE:

It is still controversial whether anteroposterior (AP) translation magnitude after total knee arthroplasty (TKA) affects clinical outcomes, particularly range of motion (ROM). This study examined the following two questions: (1) are AP translations at the mid- and long-term follow-up different for knees within the same patient treated with posterior cruciate ligament-retaining (PCLR) versus posterior cruciate ligament-substituting (PCLS) mobile-bearing TKA prosthesis designs? (2) Is the ROM at the mid- and long-term follow-up for knees treated with PCLR and PCLS designs correlated with the AP translation?

METHODS:

Thirty-seven patients undergoing sequential bilateral TKA for osteoarthritis were prospectively enrolled. Patients received a PCLR implant in one knee and a PCLS implant in the other and were followed-up for an average 9.8 ± 3.2 years. The AP translations at 30° and 75° of knee flexion and the ROM of both knees were assessed.

RESULTS:

The implant design ($p < 0.001$), but not flexion angle (n.s.), had a significant effect on AP translation. AP translation values were larger in PCLR knees than in PCLS knees at both flexion angles ($p < 0.0001$). The ROM at the final follow-up in the two implant designs was similar (both 115°, n.s.). There was a weak correlation between ROM and AP translation at 30° in the PCLR knees ($r = 0.397$, $p = 0.015$), but no correlation at 75° or in the PCLS knees.

CONCLUSIONS:

Differently constrained prosthesis designs resulted in significantly different AP translational values within the same patient. This indicates that achieving good clinical outcomes and ROM after TKA may not be strongly influenced by the specifics of each patient's anatomical characteristics, but instead by knee constraint. Clinically, this means that surgeons should familiarize themselves with the AP translation of the implant being used, as this may be the most important factor for optimizing outcomes after mobile-bearing TKA. Level of evidence II, prospective, comparative study.

KEYWORDS:

Anteroposterior translation; Bilateral total knee arthroplasty (TKA); Mid- and long-term follow-up; Posterior cruciate ligament-retaining mobile-bearing TKA; Posterior cruciate ligament-substituting mobile-bearing TKA; Range of motion

PMID: [27485124](#)

37. OSTEOARTHRITIS/KNEE

US evaluation of changes

Synovial changes detected by ultrasound in people with knee osteoarthritis - a meta-analysis of observational studies

Osteoarthritis and Cartilage , 08/11/2016 Sarmanova A, et al.

This study try and detect the prevalence of synovial effusion, synovial hypertrophy and positive Doppler signal (DS) by ultrasound (US) in people with knee osteoarthritis (OA) and/or knee pain compared to that in the general population and admit that US detected effusion, synovial hypertrophy and DS are more common in the above mentioned people, compared to the general population.

Methods

- Clinicians undertook a systematic literature search in Medline, EMBASE, Allied and Complementary Medicine, PubMed Web of Science, and SCOPUS databases in May 2015.
- By using the random effects model, frequencies of US abnormalities in people with knee OA/pain, in the general population or asymptomatic controls were pooled.
- Publication bias and heterogeneity between studies were examined.

Results

- Results acknowledged that 24 studies in people with knee pain/OA and five studies of the general population or asymptomatic controls met the inclusion criteria.
- They reported that the pooled prevalence of US effusion, synovial hypertrophy and positive DS in people with knee OA/pain were 51.5% (95% CI 40.2 to 62.8), 41.5% (26.3–57.5) and 32.7% (8.34–63.24), respectively, which were higher than those in the general population or asymptomatic controls (19.9% (95% CI 7.8–35.3%), 14.5% (0–58.81), and 15.8 (3.08–35.36), respectively).
- Comparatively, people with knee OA (ACR criteria or radiographic OA) had greater prevalence of US abnormalities than people with knee pain ($P = 0.037$, $P = 0.010$ and $P = 0.009$, respectively).

Waist size and risk of OA

The association of waist circumference with walking difficulty among adults with or at risk of knee osteoarthritis: The osteoarthritis initiative

Osteoarthritis and Cartilage , 08/11/2016 Gill SV, et al.

Researchers asked to what extent high waist circumference was linked with developing difficulty with walking speed and distance over 4 years in adults with or at risk of knee osteoarthritis (OA), and the results of this study confirmed that waist circumference may be a main risk factor for developing difficulty with speed in adults with or at risk of knee OA

Factor for OA

Osteoarthritis Cartilage. 2016 Jul 5. pii: S1063-4584(16)30171-6. doi: 10.1016/j.joca.2016.06.020.

Articular cartilage calcification of the hip and knee is highly prevalent, independent of age but associated with histological osteoarthritis: evidence for a systemic disorder.

Hawellek T¹, Hubert J², Hischke S³, Krause M⁴, Bertrand J⁵, Pap T⁶, Püschel K⁷, Rütter W⁸, Niemeier A⁹.

Author information

Abstract

OBJECTIVES:

Based on the concept of a systemic predisposition for articular cartilage calcification (CC), the aim of this study was to determine the prevalence and amount of bilateral CC of hip and knee joints in an unselected sample cohort by high-resolution digital contact radiography (DCR) and to analyze the association of CC with histological OA.

METHODS:

Both hip and knee joints of 87 donors (48 m and 39 f; mean age 62) were analyzed by DCR in this post-mortem study of an unselected cohort of donors. Histological OA (OARSI) of the main load bearing area of femoral heads and medial femoral condyles was determined.

RESULTS:

The prevalence of CC of the femoral head was 96.6%, of the knee 94.3%. Bilateral calcification was detected in 79.3% of hips and 86.2% of knees. Concomitant CC of all four joints was detected in 69.0% of donors. There was no difference between the amount of CC of hips and knees ($P = 0.47$). The amount of CC of any given hip or knee correlated with that of the contralateral hip ($r_s = 0.54$, $P < 0.001$) or knee ($r_s = 0.50$, $P < 0.001$). There was a correlation between the amount of CC and histological OA (hips $r_s = 0.48$, $P < 0.001$, knees $r_s = 0.30$, $P = 0.004$), but not between CC and age (hips $r_s = -0.09$, $P = 0.42$; knees $r_s = 0.10$, $P = 0.34$).

CONCLUSIONS:

These data support the concept that articular CC occurs as the result of a systemic disorder. CC appears to be an early element of hip and knee OA pathogenesis independent of age.

KEYWORDS: Age; Cartilage calcification; Chondrocalcinosis; Hip; Knee; Osteoarthritis
PMID: 27390030

Muscle strength and OA

Clin Rheumatol. 2016 Aug;35(8):2087-92. doi: 10.1007/s10067-016-3333-7. Epub 2016 Jun 23.

Knee muscle strength correlates with joint cartilage T2 relaxation time in young participants with risk factors for osteoarthritis.

Macías-Hernández SI¹, Miranda-Duarte A², Ramírez-Mora I³, Cortés-González S³, Morones-Alba JD⁴, Olascoaga-Gómez A⁵, Coronado-Zarco R⁵, Soria-Bastida Mde L⁴, Nava-Bringas TI⁵, Cruz-Medina E⁵.

Author information

Abstract

The objective of this study is to correlate T2 relaxation time (T2RT), measured by magnetic resonance imaging (MRI) with quadriceps and hamstring strength in young participants with risk factors for knee osteoarthritis (OA). A descriptive cross-sectional study was conducted with participants between 20 and 40 years of age, without diagnosis of knee OA. Their T2 relaxation time was measured through MRI, and their muscle strength (MS) was measured with an isokinetic dynamometer. Seventy-one participants were recruited, with an average age of 28.3 ± 5.5 years; 39 (55 %) were females. Negative correlations were found between T2RT and quadriceps peak torque (QPT) in males in the femur $r = -0.46$ ($p = 0.01$), tibia $r = -0.49$ ($p = 0.02$), and patella $r = -0.44$ ($p = 0.01$). In women, correlations were found among the femur $r = -0.43$ ($p = 0.01$), tibia $r = -0.61$ ($p = 0.01$), and patella $r = -0.32$ ($p = 0.05$) and among hamstring peak torque (HPT), in the femur $r = -0.46$ ($p = 0.01$), hamstring total work (HTW) $r = -0.42$ ($p = 0.03$), and tibia $r = -0.33$ ($p = 0.04$). Linear regression models showed good capacity to predict T2RT through QPT in both genders. The present study shows that early changes in femoral, tibial, and patellar cartilage are significantly correlated with MS, mainly QPT, and that these early changes might be explained by MS, which could play an important role in pre-clinical phases of the disease.

KEYWORDS: Articular cartilage; Knee osteoarthritis; Magnetic resonance imaging; Muscle strength; Risk factors

PMID: [27334115](#)

Osteoarthritis Cartilage. 2016 Aug;24(8):1317-29. doi: 10.1016/j.joca.2016.03.010. Epub 2016 Mar 21.

Knee Injury and Osteoarthritis Outcome Score (KOOS): systematic review and meta-analysis of measurement properties.

Collins NJ1, Prinsen CA2, Christensen R3, Bartels EM4, Terwee CB5, Roos EM6.
Author information

Abstract

OBJECTIVE:

To conduct a systematic review and meta-analysis to synthesize evidence regarding measurement properties of the Knee Injury and Osteoarthritis Outcome Score (KOOS).

DESIGN:

A comprehensive literature search identified 37 eligible papers evaluating KOOS measurement properties in participants with knee injuries and/or osteoarthritis (OA). Methodological quality was evaluated using the COSMIN checklist. Where possible, meta-analysis of extracted data was conducted for all studies and stratified by age and knee condition; otherwise narrative synthesis was performed.

RESULTS:

KOOS has adequate internal consistency, test-retest reliability and construct validity in young and old adults with knee injuries and/or OA. The ADL subscale has better content validity for older patients and Sport/Rec for younger patients with knee injuries, while the Pain subscale is more relevant for painful knee conditions. The five-factor structure of the original KOOS is unclear. There is some evidence that the KOOS subscales demonstrate sufficient unidimensionality, but this requires confirmation. Although measurement error requires further evaluation, the minimal detectable change for KOOS subscales ranges from 14.3 to 19.6 for younger individuals, and ≥ 20 for older individuals. Evidence of responsiveness comes from larger effect sizes following surgical (especially total knee replacement) than non-surgical interventions.

CONCLUSIONS:

KOOS demonstrates adequate content validity, internal consistency, test-retest reliability, construct validity and responsiveness for age- and condition-relevant subscales. Structural validity, cross-cultural validity and measurement error require further evaluation, as well as construct validity of KOOS Physical function Short form. Suggested order of subscales for different knee conditions can be applied in hierarchical testing of endpoints in clinical trials.

SYSTEMATIC REVIEW REGISTRATION:

PROSPERO (CRD42011001603).

KEYWORDS: KOOS; Knee injury; Knee osteoarthritis; Measurement properties; Meta-analysis; Patient-reported outcome measures

Weather does not influence pain

Osteoarthritis Cartilage. 2016 Aug 1. pii: S1063-4584(16)30205-9. doi: 10.1016/j.joca.2016.07.016.

The influence of weather on the risk of pain exacerbation in patients with knee osteoarthritis - a case-crossover study.

Ferreira ML¹, Zhang Y², Metcalf B³, Makovey J⁴, Bennell KL³, March L⁴, Hunter DJ⁵.
Author information

Abstract

OBJECTIVE:

To quantify the risk of knee pain exacerbation associated with temperature, relative humidity, air pressure and precipitation in persons with knee osteoarthritis.

METHOD:

a web-based case-crossover study was conducted. Participants with a diagnosis of symptomatic, radiographic knee osteoarthritis were measured at baseline and followed for 3 months. Participants were instructed to log on to the study website if they perceived experiencing knee pain exacerbation (hazard period). Pain exacerbation was defined as an increase of ≥ 2 on a 0-10 numeric rating scale from the participant's mildest pain reported at baseline. A time-stratified case-crossover study was conducted to anchor the corresponding hazard date to 4 control periods within a particular 35-day interval. Data on maximum and minimum temperature ($^{\circ}\text{C}$), relative humidity (%), barometric pressure (hPa) and precipitation (mm) were obtained for the hazard and control periods from the publicly available meteorological database of the Australian Bureau of Meteorology. The associations were assessed using conditional logistic regression.

RESULTS:

Of the 345 participants recruited, 171 participants (women: 64%, mean age: 62 years, mean BMI: 30.2 kg/m²) experienced at least one episode of pain exacerbation, yielding 1,425 observations included in the analyses. There was no apparent association between temperature, relative humidity, air pressure or precipitation and risk of knee pain exacerbation.

CONCLUSION:

Despite anecdotal reports from patients, change in weather factors does not appear to influence the risk of pain exacerbation in persons with knee osteoarthritis. Additional studies should quantify the association of weather and risk of pain exacerbation in regions with more extreme weather conditions.

KEYWORDS: case-crossover; climate; knee pain; osteoarthritis; risk
PMID: [27492467](#)

45 A. MANUAL THERAPY LUMBAR & GENERAL

Size and MT

Strategies to overcome size and mechanical disadvantages in manual therapy

Charles R. Hazle Jr. & Matthew Lee

Page 120-127 | Published online: 09 Feb 2016

JMMT

Abstract

The practice of manual therapy (MT) is often difficult when providing care for large patients and for practitioners small in stature or with other physical limitations. Many MT techniques can be modified using simple principles to require less exertion, permitting consistency with standards of practice even in the presence of physical challenges. Commonly used MT techniques are herein described and demonstrated with alternative preparatory and movement methods, which can also be adopted for use in other techniques. These alternative techniques and the procedures used to adapt them warrant discussion among practitioners and educators in order to implement care, consistent with the best treatment evidence for many common musculoskeletal (MSK) conditions. The inclusion in educational curricula and MT training programs is recommended to enrich skill development in physical therapists (PTs), spanning entry-level practitioners to those pursuing advanced manual skills.

Keywords: [Manual therapy](#), [Manipulation](#), [Obesity](#), [Professional issues](#),

Manipulation effectiveness

Spine J. 2016 Jun 23. pii: S1529-9430(16)30272-8. doi: 10.1016/j.spinee.2016.06.014.

Cost-effectiveness of spinal manipulative therapy, supervised exercise, and home exercise for older adults with chronic neck pain.

Leininger B¹, McDonough C², Evans R³, Tosteson T⁴, Tosteson AN⁵, Bronfort G³.

Author information

Abstract

BACKGROUND CONTEXT: Chronic neck pain is a prevalent and disabling condition among older adults. Despite the large burden of neck pain, little is known regarding the cost-effectiveness of commonly used treatments.

PURPOSE: This study aimed to estimate the cost-effectiveness of home exercise and advice (HEA), spinal manipulative therapy (SMT) plus HEA, and supervised rehabilitative exercise (SRE) plus HEA.

STUDY DESIGN/SETTING: Cost-effectiveness analysis conducted alongside a randomized clinical trial (RCT) was performed.

PATIENT SAMPLE: A total of 241 older adults (≥ 65 years) with chronic mechanical neck pain comprised the patient sample.

OUTCOME MEASURES: The outcome measures were direct and indirect costs, neck pain, neck disability, SF-6D-derived quality-adjusted life years (QALYs), and incremental cost-effectiveness ratios (ICERs) over a 1-year time horizon.

METHODS: This work was supported by grants from the National Center for Complementary and Integrative Health (#F32AT007507), National Institute of Arthritis and Musculoskeletal and Skin Diseases (#P60AR062799), and Health Resources and Services Administration (#R18HP01425). The RCT is registered at ClinicalTrials.gov (#NCT00269308). A societal perspective was adopted for the primary analysis. A healthcare perspective was adopted as a sensitivity analysis. Cost-effectiveness was a secondary aim of the RCT which was not powered for differences in costs or QALYs. Differences in costs and clinical outcomes were estimated using generalized estimating equations and linear mixed models, respectively. Cost-effectiveness acceptability curves were calculated to assess the uncertainty surrounding cost-effectiveness estimates.

RESULTS: Total costs for SMT+HEA were 5% lower than HEA (mean difference: -\$111; 95% confidence interval [CI] -\$1,354 to \$899) and 47% lower than SRE+HEA (mean difference: -\$1,932; 95% CI -\$2,796 to -\$1,097). SMT+HEA also resulted in a greater reduction of neck pain over the year relative to HEA (0.57; 95% CI 0.23 to 0.92) and SRE+HEA (0.41; 95% CI 0.05 to 0.76). Differences in disability and QALYs favored SMT+HEA. The probability that adding SMT to HEA is cost-effective at willingness to pay thresholds of \$50,000 to \$200,000 per QALY gained ranges from 0.75 to 0.81. If adopting a health-care perspective, costs for SMT+HEA were 66% higher than HEA (mean difference: \$515; 95% CI \$225 to \$1,094), resulting in an ICER of \$55,975 per QALY gained.

CONCLUSION: On average, SMT+HEA resulted in better clinical outcomes and lower total societal costs relative to SRE+HEA and HEA alone, with a 0.75 to 0.81 probability of cost-effectiveness for willingness to pay thresholds of \$50,000 to \$200,000 per QALY.

KEYWORDS: Chronic neck pain; Cost-effectiveness; Exercise; Home exercise; Older adults; Spinal manipulative therapy

45 D. MANUAL THERAPY EXTREMITIES

McKenzie and lateral epicondylitis**The application of mechanical diagnosis and therapy in lateral epicondylalgia**

Joseph R. Maccio, Sarah Fink, Richard Yarznbowicz & Stephen May

Page 158-165 | Published online: 09 Feb 2016

<http://dx.doi.org/10.1080/10669817.2015.1110303>

Background: lateral epicondylalgia (LE) is a musculoskeletal diagnosis that causes pain and dysfunction in the lateral aspect of the elbow. Mechanical diagnosis and therapy (MDT) is an orthopaedic classification and treatment system based on mechanical and symptomatic response to repeated and sustained end-range movement. There has been no investigation of the association between MDT and patients diagnosed with LE.

Case description: this report presents three patients matching the currently accepted diagnostic criteria for LE, two with a diagnosis of lateral epicondylitis (tennis elbow) from a medical doctor. These patients were classified and treated by a diplomat of MDT and two third-year doctoral students of physical therapy using MDT.

Outcomes: short- and long-term (one year) outcomes were excellent, demonstrating rapid abolishment of symptoms and return to prior levels of function in 3–6 visits between 11–59 days. Patients demonstrated the ability to prevent and manage reoccurrence of symptoms independently without seeking further health care.

Discussion: this case series raises questions about whether or not the pathologies traditionally associated with the aetiology of LE are actually at fault. Moreover, it raises questions about the utility of special tests typically utilized to identify those structures. The series provides preliminary evidence that MDT may be capable of providing effective short- and long-term outcomes in the management of LE. Level of Evidence: 4

Keywords: Mechanical diagnosis and therapy, Lateral epicondylalgia, Case series,

STM vs US**The immediate effects of soft tissue mobilization versus therapeutic ultrasound for patients with neck and arm pain with evidence of neural mechanosensitivity: a randomized clinical trial**

Michael Costello, Emilio 'Louie' J. Puentedura, Josh Cleland & Charles D. Ciccone

Page 128-140 | Published online: 13 May 2016 JMMT

Study design: Randomized clinical trial.

Objectives: To investigate the immediate effects of soft tissue mobilization (STM) versus therapeutic ultrasound (US) in patients with neck and arm pain who demonstrate neural mechanical sensitivity.

Background: While experts have suggested that individuals with neck and arm pain associated with neural tissue mechanical sensitivity may benefit from STM, there has been little research to investigate this hypothesis.

Methods: Twenty-three patients with neck and arm pain and a positive upper limb neurodynamic test (ULNT) were randomly assigned to receive STM or therapeutic US during a single session. Outcome measures were collected immediately before and after treatment, and at 2–4 day follow-up. Primary outcomes were the Global Rating of Change (GROC), range of motion (ROM) during the ULNT, and pain rating during the ULNT. Secondary measures included the Neck Disability Index (NDI), Patient-Specific Functional Scale (PSFS), Numeric Pain Rating Scale (NPRS), and active range of shoulder abduction motion combined with the wrist neutral or wrist extension.

Results: A greater proportion of patients in the STM group reported a significant improvement on the GROC immediately after treatment ($P=0.003$, STM=75%, US=9%), and at 2–4 day follow-up ($P=0.027$, STM=58%, US=9%). Patients who received STM demonstrated greater improvements in ROM during ULNT ($P=0.026$), PSFS ($P=0.007$), and shoulder active ROM combined with wrist extension ($P=0.028$). Improvements in Numeric Pain Rating Scale and pain during the ULNT were observed only in the STM group. There was no difference between groups for the NDI or shoulder abduction ROM with wrist neutral.

Conclusion: Patients with neck and arm pain demonstrated greater improvements in ULNT ROM, GROC, and PSFS, and pain following STM than after receiving therapeutic US.

Level of evidence: Therapy, level 1b.

Keywords: Cervical radiculopathy, Whiplash, Upper limb neurodynamic test, Soft tissue mobilization,

Thai massage

Short-term effects of traditional Thai massage on electromyogram, muscle tension and pain among patients with upper back pain associated with myofascial trigger points

Complementary Therapies in Medicine, 08/10/2016

Buttogat V, et al. – The authors performed randomized clinical trial to determine the impacts of traditional Thai massage (TTM) on electromyographic (EMG) activity, muscle tension and pain intensity in patients with upper back pain associated with myofascial trigger points (MTrPs) and further they suggested that traditional Thai massage can increase physical relaxation and reduce pain in patients with upper back pain associated with MTrPs.

Methods

- The authors conducted a single-blind, randomized clinical trial.
- They enrolled a total of 50 patients.
- Patients allocated randomly to receive a 30-min session of either TTM or control (sham microwave diathermy).

Results

- TTM were associated with significant decreases in EMG, muscle tension and pain intensity after the end of treatment session ($p < 0.05$).
- Association was found between traditional Thai massage with significant decreases in electromyography, muscle tension and pain intensity after the end of treatment session ($p < 0.05$).
- For all outcomes, similar changes were not observed in the control group ($p > 0.05$) except for muscle tension ($p < 0.05$).
- Despite, there was a significantly greater reduction in all parameters for the TTM group when compared with the control group.

48 B. TRIGGER POINTS NEEDLING/ACUPUNCTURE

Twitch response

The association between dry needling-induced twitch response and change in pain and muscle function in patients with low back pain: A quasi-experimental study

Physiotherapy, 08/10/2016

Koppenhaver SL, et al. – In this Quasi-experimental study, the association between dry needling-induced twitch response and change in pain, disability, nociceptive sensitivity, and lumbar multifidus muscle function, in patients with low back pain (LBP) were investigated. After a long research, evidence suggested that the twitch response during dry needling might be clinically relevant, but should not be considered necessary for successful treatment.

Methods

- The researchers designed quasi-experimental study.
- A total of 66 patients participated in this study with mechanical LBP (38 men, 28 women, age: 41.3 [9.2] years).
- Examination procedures included numeric pain rating, the Modified Oswestry Disability Index, pressure algometry, and real-time ultrasound imaging assessment of lumbar multifidus muscle function before and after dry needling treatment.
- They used pain pressure threshold to measure nociceptive sensitivity.
- The percent change in muscle thickness from rest to contraction was calculated to represent muscle function.
- Participants were dichotomized and compared based on whether or not they experienced at least one twitch response on the most painful side and spinal level during dry needling.

Results

- It was revealed that participants experiencing local twitch response during dry needling exhibited greater immediate improvement in lumbar multifidus muscle function than participants who did not experience a twitch (thickness change with twitch: 12.4 [5.7]%, thickness change without twitch: 5.7 [10.5]%, mean difference adjusted for baseline value, 95% CI: 4.4 [1.2, 7.5]%).
- Despite, this difference was not present after 1-week, and there were no between-groups differences in disability, pain intensity, or nociceptive sensitivity.

51. CFS/BET

Body awareness and chronic pain

Clin J Pain. 2016 Sep;32(9):763-72. doi: 10.1097/AJP.0000000000000320.

Body Awareness as an Important Target in Multidisciplinary Chronic Pain Treatment: Mediation and Subgroup Analyses.

van der Maas LC¹, Köke A, Bosscher RJ, Twisk JW, Janssen TW, Peters M.
Author information

Abstract

BACKGROUND:

The results of a recently performed randomized clinical trial showed that the effect of a multidisciplinary treatment of chronic pain patients on body awareness (BA), catastrophizing, and depression was improved by adding psychomotor therapy (PMT), an intervention targeting BA. No significant effects were found on quality of life and disability. The present follow-up study aimed to explore the relationship between improvements in BA and multidisciplinary chronic pain rehabilitation treatment outcome across treatment conditions and the possible mediating effect of BA between treatment conditions. Furthermore, the hypothesis that patients with low BA benefit more from PMT was investigated.

METHODS:

In total, 94 patients with chronic pain participated in a randomized clinical trial comparing multidisciplinary treatment as usual (TAU) with TAU plus PMT. Outcome variables were health-related quality of life, disability, and depression. Self-efficacy and catastrophizing were the process variables of treatment and the potential mediating factors in the relationship between BA and the outcome variables. The data were analyzed by linear mixed-model analysis.

RESULTS:

Improvements in BA were related to improvements in all outcome variables across treatment conditions. The relationships were partly mediated by self-efficacy, catastrophizing, or both. In the regression model with depression as the outcome variable, the regression coefficient of treatment (ie, PMT vs. TAU) decreased by 34% and became nonsignificant when BA was added as a potential mediator. Patients with low BA seemed to benefit more from PMT than patients with high BA, especially on depression, BA, and catastrophizing.

CONCLUSIONS:

BA might be an important target of treatment to improve the multidisciplinary treatment outcome in chronic pain patients. Furthermore, PMT is an intervention that seems to provide its benefits through improving BA and may be especially beneficial for patients with low BA.

PMID: [26550959](#)

54. POSTURE

Saliba postural classification system**The reliability and validity of the Saliba Postural Classification System**

Cristiana Kahl Collins, Vicky Saliba Johnson, Ellen M. Godwin & Evangelos Pappas

JMMT Page 174-181 | Published online: 10 Feb 2016

<http://dx.doi.org/10.1080/10669817.2016.1138599>

Abstract

Objectives: To determine the reliability and validity of the Saliba Postural Classification System (SPCS). **Methods:** Two physical therapists classified pictures of 100 volunteer participants standing in their habitual posture for inter and intra-tester reliability. For validity, 54 participants stood on a force plate in a habitual and a corrected posture, while a vertical force was applied through the shoulders until the clinician felt a postural give. Data were extracted at the time the give was felt and at a time in the corrected posture that matched the peak vertical ground reaction force (VGRF) in the habitual posture.

Results: Inter-tester reliability demonstrated 75% agreement with a Kappa = 0.64 (95% CI = 0.524–0.756, SE = 0.059). Intra-tester reliability demonstrated 87% agreement with a Kappa = 0.8, (95% CI = 0.702–0.898, SE = 0.05) and 80% agreement with a Kappa = 0.706, (95% CI = 0.594–0.818, SE = 0.057). The examiner applied a significantly higher ($p < 0.001$) peak vertical force in the corrected posture prior to a postural give when compared to the habitual posture. Within the corrected posture, the %VGRF was higher when the test was ongoing vs. when a postural give was felt ($p < 0.001$). The %VGRF was not different between the two postures when comparing the peaks ($p = 0.214$).

Discussion: The SPCS has substantial agreement for inter- and intra-tester reliability and is largely a valid postural classification system as determined by the larger vertical forces in the corrected postures. Further studies on the correlation between the SPCS and diagnostic classifications are indicated.

Keywords: Posture, Postural alignment, Postural classification, Postural stability,

Kyphosis and falls

Spine (Phila Pa 1976). 2016 Aug 1;41(15):1232-8. doi: 10.1097/BRS.0000000000001602.

Relationship Between Kyphotic Posture and Falls in Community-Dwelling Men and Women: The Locomotive Syndrome and Health Outcome in Aizu Cohort Study.

Tominaga R¹, Fukuma S, Yamazaki S, Sekiguchi M, Otani K, Kikuchi S, Sasaki S, Kobayashi S, Fukuhara S, Konno S.

Author information

Abstract

STUDY DESIGN:

A cohort study using data from the Locomotive Syndrome and Health Outcome in Aizu Cohort Study, a population-based prospective cohort study of residents of the towns of Tadami and Minamiaizu in Fukushima Prefecture, Japan.

OBJECTIVE:

The aim of this study was to clarify the association between kyphotic posture and falls, and to investigate the presence or absence of sex differences.

SUMMARY OF BACKGROUND DATA:

In our literature review, we found no studies focusing on sex differences in the association between kyphotic posture and falls.

METHODS:

We included subjects aged more than 40 years who participated in annual health check-ups from 2009 to 2010. We analyzed the effects of kyphotic posture, measured using the wall-occiput test (WOT), on falls, adjusting for potential confounders, such as age, body mass index, symptoms of depression, sedative medication, and other comorbidities.

RESULTS:

We enrolled a total of 1418 subjects into primary analyses (593 men, 825 women; mean [standard deviation] age, 68.1 [7.7] yrs). We then stratified subjects into the following groups according to the degree of kyphotic posture: nonkyphotic posture (n=1138, 80.3%), mild kyphotic posture (n=172, 12.1%), and severe kyphotic posture (n=108, 7.6%). We observed no significant difference in the severity of kyphotic posture between men and women (P=0.18). Overall, 284 subjects (20.0%) experienced at least one fall during the one-year period. After adjustment for potential confounders using a logistic regression model, we observed a significant association between severe kyphotic posture and falls for men [odds ratio (OR) 2.14 (1.01-4.57); P=0.048]. In contrast, we observed no significant association for women [OR for severe kyphotic posture 0.80 (0.43-1.50), OR for mild kyphotic posture 0.91 (0.53-1.57)].

CONCLUSION:

We identified a sex difference in the association between kyphotic posture and falls in community-dwelling adults. In particular, severe kyphotic posture might only increase the incidence of falls in men.

LEVEL OF EVIDENCE: 3.

59. PAIN

Out of body Illusions helps decrease chronic pain

Original Article

Putting pain out of mind with an ‘out of body’ illusion

Authors

J. Pamment, J.E. Aspell

DOI: 10.1002/ejp.927View/save citation

Background

Chronic pain is a growing societal concern that warrants scientific investigation, especially given the ineffectiveness of many treatments. Given evidence that pain experience relies on multisensory integration, there is interest in using body ownership illusions for reducing acute pain.

Aim

In the present study, we investigate whether patients’ experience of chronic pain could be reduced by full body illusions (FBIs) that cause participants to dissociate from their own body.

Methods

Participants with chronic pain (including sciatica, osteoarthritis, fibromyalgia, muscular pain, IBS and back pain) viewed their own ‘virtual’ bodies via a video camera and head-mounted display for two minutes. In the ‘back-stroking FBI’, their backs were stroked with a stick while they viewed synchronous or asynchronous stroking on the virtual body and in the ‘front-stroking FBI’, they were stroked near their collarbone while viewing the stick approach their field of view in a synchronous or asynchronous fashion. Illusion strength and pain intensity were measured with self-report questionnaires.

Results

We found that full body illusions were experienced by patients with chronic pain and further, that pain intensity was reduced by an average of 37% after illusion (synchronous) conditions.

Conclusion

These findings add support to theories that high-level multisensory body representations can interact with homeostatic regulation and pain perception.

Significance

Pain intensity in chronic pain patients was reduced by 37% by ‘out of body’ illusions. These data demonstrate the potential of such illusions for the management of chronic pain.

Chronic pain more sensitive to pressure

Increased deep pain sensitivity in persistent musculoskeletal pain but not in other musculoskeletal pain states

Scandinavian Journal of Pain, 08/10/2016 Gunnarsson HEM, et al.

In a study, pressure pain thresholds in a pain-free body part in relation to pain persistence and intensity in patients with musculoskeletal pain were evaluated. The authors noticed increased deep pain sensitivity in patients with persistent musculoskeletal pain, but not in regularly recurrent pain or in acute pain. Thus far, a limitation of the study is that it did not have sufficient power to detect small levels of increased deep pain sensitivity among the latter groups when compared to healthy controls.

Does adding cognitive-behavioural physiotherapy to exercise improve outcome in patients with chronic neck pain? A randomised controlled trial,

J.A. Oldham S.R. Woby

Objectives

To determine whether adding a physiotherapist-led cognitive-behavioural intervention to an exercise programme improved outcome in patients with chronic neck pain (CNP).

Design

Multicentre randomised controlled trial.

Setting

Four outpatient physiotherapy departments.

Participants

Fifty-seven patients with CNP. Follow-up data were provided by 39 participants [57% of the progressive neck exercise programme (PNEP) group and 79% of the interactive behavioural modification therapy (IBMT) group].

Interventions

Twenty-eight subjects were randomised to the PNEP group and 29 subjects were randomised to the IBMT group. IBMT is underpinned by cognitive-behavioural principles, and aims to modify cognitive risk factors through interactive educational sessions, graded exercise and progressive goal setting.

Main outcome measures

The main outcome measure was disability, measured by the Northwick Park Questionnaire (NPQ). Secondary outcomes were the Numeric Pain Rating Scale (NPRS), Pain Catastrophising Scale, Tampa Scale for Kinesiophobia (TSK), Chronic Pain Self-efficacy Scale (CPSS) and the Pain Vigilance and Awareness Questionnaire.

Results

No significant between-group differences in disability were observed (mean NPQ change: PNEP = -7.2, IBMT = -10.2). However, larger increases in functional self-efficacy (mean CPSS change: PNEP = 1.0, IBMT = 3.2) and greater reductions in pain intensity (mean NPRS change: PNEP = -1.0, IBMT = -2.2; $P < 0.05$) and pain-related fear (mean TSK change: PNEP = 0.2, IBMT = -4.7, $P < 0.05$) were observed with IBMT. Additionally, a significantly greater proportion of participants made clinically meaningful reductions in pain (25% vs 55%, $P < 0.05$) and disability (25% vs 59%, $P < 0.05$) with IBMT.

Conclusions

The primary outcome did not support the use of cognitive-behavioural physiotherapy in all patients with CNP. However, superior outcomes were observed for several secondary measures, and IBMT may offer additional benefit in some patients.

[Pain aspects post AA](#)

Clin J Pain. 2016 Sep;32(9):817-27. doi: 10.1097/AJP.0000000000000342.

Chronic Pain Following Motor Vehicle Collision: A Systematic Review of Outcomes Associated With Seeking or Receiving Compensation.

Giummarra MJ¹, Ioannou L, Ponsford J, Cameron PA, Jennings PA, Gibson SJ, Georgiou-Karistianis N.

Author information

Abstract

OBJECTIVE:

Motor vehicle collisions (MVC) are a major cause of injury, which frequently lead to chronic pain and prolonged disability. Several studies have found that seeking or receiving financial compensation following MVC leads to poorer recovery and worse pain. We evaluated the evidence for the relationship between compensation and chronic pain following MVC within a biopsychosocial framework.

METHOD:

A comprehensive search of 5 computerized databases was conducted. Methodological quality was evaluated independently by 2 researchers according to formal criteria, and discrepancies were resolved with a third reviewer.

RESULTS:

We identified 5619 studies, from which 230 full-text articles were retrieved and 27 studies were retained for appraisal. A third of studies (37%) were of low quality, and 44% did not measure or control for factors such as injury severity or preinjury pain and disability. Most studies (70%) reported adverse outcomes, including all of the highest quality studies. Engagement with compensation systems was related to more prevalent self-reported chronic pain, mental health disorders, and reduced return to work. Recovery was poorer when fault was attributed to another, or when a lawyer was involved. Five studies compared Tort "common law" and No-Fault schemes directly and concluded that Tort claimants had poorer recovery.

CONCLUSIONS:

Although causal relationships cannot be assumed, the findings imply that aspects of loss, injustice, and secondary mental health outcomes lead to chronic pain following MVC. Further robust prospective research is required to understand the complex relationship between compensation systems and pain following road trauma, particularly the role of secondary mental health outcomes.

PMID:[26889614](#)

60. COMPLEX REGIONAL PAIN

Endocrine disorders**Original Article****Endocrine disorders in women with complex regional pain syndrome type I****Authors**

A. Buryanov, A. Kostrub, V. Kotiuk

DOI: 10.1002/ejp.924View/save citation

Background

The question of hormonal dysregulation in patients with CRPS I in whole was investigated very scantily. There are only a few studies concerning catecholamines, oestrogens and endorphins independently. Other hormones were studied in patients with different other chronic pain conditions. Considering the accumulation of sufficient knowledge about the role of disadaptation processes in CRPS I pathogenesis and the role of the hypothalamic-pituitary-adrenal and hypothalamic-pituitary-ovarian systems in the process of adaptation it was logical and consistent to define the role of hormonal dysregulation of these systems in patients with CRPS I.

Objectives

Our objective was to determine the role of hypothalamic-pituitary-adrenal and hypothalamic-pituitary-ovarian systems in pathogenesis of complex regional pain syndrome type I (CRPS I) in women.

Methods

We investigated the pituitary gonadotropic function and the function of sex glands in women with CRPS I and healthy volunteers by measuring the plasma levels of estradiol (E₂), follicle-stimulating hormone, luteinizing hormone, prolactin, adrenocorticotrophic hormone, and cortisol, and urinary excretion of 17-ketosteroids, 17-oxycorticosteroids, epinephrine and norepinephrine.

Results

Women with CRPS I were characterized by the decreased content of oestrogens in the blood plasma and increased pituitary gonadotrophic function. The disturbed ratio of anabolic and catabolic steroids in women with CRPS I was detected due to lower adrenal cortex function.

Conclusions

In patients with CRPS I endocrine status is characterized by hormonal imbalances of the hypothalamic-pituitary-adrenal and hypothalamic-pituitary-gonadal systems. The changes in reproductive and adaptation homeostasis characterize CRPS I as a form of the disease of disadaptation.

Significance

This study determined the role of hypothalamic-pituitary-adrenal and hypothalamic-pituitary-ovarian systems in pathogenesis of CRPS I.

62 A. NUTRITION/VITAMINS

Fish consumption in children helps

Clin Nutr. 2016 Feb 23. pii: S0261-5614(16)00065-0. doi: 10.1016/j.clnu.2016.02.008.

Fish consumption in mid-childhood and its relationship to neuropsychological outcomes measured in 7-9 year old children using a NUTRIMENTHE neuropsychological battery.

Gispert-Llaurado M¹, Perez-Garcia M², Escribano J¹, Closa-Monasterolo R¹, Luque V¹, Grote V³, Weber M³, Torres-Espínola FJ⁴, Czech-Kowalska J⁵, Verduci E⁶, Martin F⁷, Piqueras MJ⁴, Koletzko B³, Decsi T⁸, Campoy C⁹, Emmett PM¹⁰; EU Childhood Obesity Trial (CHOP) Study Group; NUHEAL Study Group.

Collaborators (68)

Author information

Abstract

BACKGROUND:

Long-chain polyunsaturated fatty acids (LCPUFA), particularly n-3 LCPUFA, play a central role in neuronal growth and the development of the human brain. Fish is the main dietary source of n-3 LCPUFA. To assess the relation between fish consumption, estimated dietary n-3 LCPUFA intake and cognition and behaviour in childhood in a multi-centre European sample.

METHODS:

Children from 2 European studies, CHOP and NUHEAL, were assessed at 8 and 7.5 years of age, respectively. Different outcomes of neuropsychological development (assessed with the standardized NUTRIMENTHE Neuropsychological Battery (NNB) consisting of 15 subtests) were related with outcomes from a food-frequency questionnaire (FFQ) focussing on the consumption of fish.

RESULTS:

A total of 584 children completed the FFQ and the neuropsychological tests. We found no associations with calculated DHA or EPA intakes for any of the neuropsychological domains. Children who consumed 2 fish meals per week including one of fatty fish, showed no substantive differences in the cognitive domains from the children who did not. However negative associations with fatty fish consumption were found for social problems ($p = 0.019$), attention problems ($p = 0.012$), rule-breaking problems ($p = 0.019$) and aggressive behaviour problems ($p = 0.032$). No association was observed with internalizing problems. Higher levels of externalizing problems ($p = 0.018$) and total problems ($p = 0.018$) were associated with eating less fatty fish.

CONCLUSIONS:

Children who consumed 2 fish meals per week including one of fatty fish were less likely to show emotional and behavioural problems than those who did not.

KEYWORDS:

Childhood; Cognition; Fatty fish; Fish consumption; Long-chain polyunsaturated fatty acids (LCPUFA); Neuropsychological battery

Breakfast and function

Am J Clin Nutr. 2016 Jul 27. pii: ajcn132043.

Breakfast consumption has no effect on neuropsychological functioning in children: a repeated-measures clinical trial.

Iovino I¹, Stuff J², Liu Y², Brewton C³, Dovi A³, Kleinman R⁴, Nicklas T⁵.

Author information

Abstract

BACKGROUND:

Although many studies have investigated the relation between breakfast consumption and various domains of cognitive functioning within children, some of the reported findings are inconsistent.

OBJECTIVE:

We sought to determine the short-term effects of a breakfast meal on the neuropsychological functioning of healthy school-aged children after an overnight fast.

DESIGN:

The study was conducted in a clinical research center with the use of a counterbalanced repeated-measures design among children who either consumed breakfast or were fasting. The administered neuropsychological tests included measures of attention, impulsivity, short-term memory, cognitive processing speed, and verbal learning. The sample consisted of children aged 8-10 y (n = 128), of whom 52% were female, 38% were African American, 31% were Hispanic, 28% were white, and 3% were of another race/ethnicity.

RESULTS:

There were no significant ($P \geq 0.004$) differences between breakfast meal consumption and fasting for any of the neuropsychological measures administered.

CONCLUSION:

Breakfast consumption had no short-term effect on neuropsychological functioning in healthy school-aged children. This trial was registered at clinicaltrials.gov as [NCT01943604](https://clinicaltrials.gov/ct2/show/study/NCT01943604).

KEYWORDS: breakfast consumption; breakfast skipping; children; cognition; neuropsychological functioning

PMID: [27465375](https://pubmed.ncbi.nlm.nih.gov/27465375/)

Vit D and CA for fx

J Orthop Trauma. 2016 Aug;30(8):e285-8. doi: 10.1097/BOT.0000000000000592.

Economic Benefit of Calcium and Vitamin D Supplementation: Does It Outweigh the Cost of Nonunions?

Childs BR¹, Andres BA, Vallier HA.
Author information

Abstract

OBJECTIVES:

The purpose was to evaluate economic benefit of calcium and vitamin D supplementation in orthopaedic trauma patients. We hypothesized that reduced nonunion rates could justify the cost of supplementing every orthopaedic trauma patient.

DESIGN:

Retrospective, economic model.

SETTING:

Level 1 trauma center.

PATIENTS/PARTICIPANTS:

Adult patients over 3 consecutive years presenting with acute fracture.

INTERVENTION:

Operative or nonoperative fracture management.

MAIN OUTCOME MEASUREMENTS:

Electronic medical records were queried for ICD-9 code for diagnosis of nonunion and for treatment records of nonunion for fractures initially treated within our institution.

RESULTS:

In our hospital, a mean of 92 (3.9%) fractures develop nonunion annually. A 5% reduction in nonunion risk from 8 weeks of vitamin D supplementation would result in 4.6 fewer nonunions per year. The mean estimate of cost for nonunion care is \$16,941. Thus, the projected reduction in nonunions after supplementation with vitamin D and calcium would save \$78,030 in treatment costs per year. The resulting savings outweigh the \$12,164 cost of supplementing all fracture patients during the first 8 weeks of fracture healing resulting in a net savings of \$65,866 per year.

CONCLUSIONS:

Vitamin D and calcium supplementation of orthopaedic trauma patients for 8 weeks after fracture seems to be cost effective. Supplementation may also reduce the number of subsequent fractures, enhance muscular strength, improve balance in the elderly, elevate mood leading to higher functional outcome scores, and diminish hospital tort liability by reducing the number of nonunions.

LEVEL OF EVIDENCE:

Economic Level V. See Instructions for Authors for a complete description of levels of evidence.

PMID: [27010185](#)

[Coffee and dementia](#)

Clin Nutr. 2016 May 30. pii: S0261-5614(16)30111-X. doi: 10.1016/j.clnu.2016.05.015.

Coffee intake and the incident risk of cognitive disorders: A dose-response meta-analysis of nine prospective cohort studies.

Wu L¹, Sun D², He Y³.

Author information

Abstract

BACKGROUND & AIMS:

Previous epidemiological studies have provided inconsistent conclusions on the impact of coffee consumption in the developing of cognitive disorders. However, no previous meta-analysis has pooled the evidence from the prospective cohort studies to assess the influence of coffee drinking and its potential dose-response patterns on the risk of developing cognitive disorders specifically.

METHODS:

Two databases (PubMed and Embase) were searched for evidence of cohort studies from inception to February 2016. We used a generic inverse-variance method with a random-effects model to pool the fully adjusted relative risks (RRs) and the corresponding 95% confidence intervals (CIs). In the dose-response analyses, a generalized least-squares trend estimation model was applied to computing the study-specific slopes.

RESULTS:

Nine prospective cohort studies involving 34,282 participants were included in our study. The duration of follow-up years ranged from 1.3 to 28. Compared with <1 cup, daily drinking of 1-2 cups of coffee was inversely linked with the occurrence of cognitive disorders (i.e., Alzheimer's disease, dementia, cognitive decline, and cognitive impairment), and the pooled RR (95% CI) was 0.82 (0.71, 0.94) with evidence of non-significant heterogeneity ($I^2 = 25\%$). Non-significant differences were presented for the association between coffee consumption (>3 vs. <1 cup/d) and incident cognitive disorders. The dose-response analysis showed a "J-shaped" curve relationship of the risk of developing cognitive disorders with coffee consumption.

CONCLUSIONS:

A "J-shaped" association was presented between coffee intake and incident cognitive disorders, with the lowest risk of incident cognitive disorders at a daily consumption level of 1-2 cups of coffee.

KEYWORDS: Alzheimer's disease; Coffee intake; Cognitive disorders; Cognitive impairment; Dementia; Meta-analysis

PMID: [27288328](https://pubmed.ncbi.nlm.nih.gov/27288328/)