

2. LBP

Stinkin Thinkin

Br J Health Psychol. 2017 Apr 3. doi: 10.1111/bjhp.12240.

'I call it stinkin' thinkin': A qualitative analysis of metacognition in people with chronic low back pain and elevated catastrophizing.

Schütze R¹, Rees C¹, Slater H², Smith A², O'Sullivan P².

OBJECTIVES:

Pain catastrophizing is widely studied in quantitative pain research because of its strong link with poor pain outcomes, although the exact nature of this construct remains unclear. Focusing on its ruminative dimension, the present qualitative study aimed to explore a nascent aspect of pain catastrophizing - metacognition - by documenting people's attitudes towards rumination and examining how these metacognitions might influence the course it takes.

DESIGN: Qualitative interview study.

METHODS:

Semi-structured interviews were conducted in a tertiary care setting with 15 adults experiencing chronic (≥ 6 months) low back pain who scored highly (≥ 30) on the Pain Catastrophising Scale. Transcripts were analysed using interpretative phenomenological analysis.

RESULTS:

The first aim of documenting pain metacognitions revealed both positive (e.g., 'thinking helps me to cope') and negative (e.g., 'rumination is uncontrollable') attitudes towards pain rumination. These were often held simultaneously, creating internal conflict. The second aim of exploring the influence of metacognition on rumination showed that both negative and positive metacognitions could fuel perseverative thinking. However, more nuanced negative metacognitions (e.g., 'worry is pointless') could help to end episodes of rumination by motivating the use of concrete problem-solving or active coping behaviours.

CONCLUSIONS:

While most participants described pain rumination as uncontrollable and harmful, dwelling on pain could be helpful when focused on tangible and solvable problems, thereby translating into adaptive coping behaviours that eventually interrupt rumination. Future treatments may be more effective if they are based on individualized formulations of pain catastrophizing that focus on its perseverative nature and implicit function. Statement of contribution What is already known on this subject? Chronic pain affects one in five people, and psychological coping responses are key targets within gold standard biopsychosocial interventions. People who have elevated pain catastrophizing tend to have worse pain outcomes, including increased pain, disability, and emotional distress. What people believe about their own thinking (i.e., their metacognitions) influences how much they worry or ruminate. What does this study add? This is the first qualitative study exploring metacognitions in people with chronic pain and the first to target a purposive sample of people with elevated pain catastrophizing. People with elevated pain catastrophizing often see rumination as uncontrollable and harmful but may simultaneously believe it helps them to solve problems or feel prepared for future threats. Pain catastrophizing is not a stable and enduring trait but fluctuates both within and across individuals in response to pain, context, metacognitive beliefs about rumination, and coping behaviours.

Balance changes

Disabil Rehabil. 2017 Mar 10:1-7. doi: 10.1080/09638288.2017.1294627.

People with chronic low back pain have poorer balance than controls in challenging tasks.

da Silva RA^{1,2}, Vieira ER³, Fernandes KB^{1,2}, Andraus RA^{1,2}, Oliveira MR^{1,2}, Sturion LA^{1,2}, Calderon MG¹.

PURPOSE:

To compare the balance of individuals with and without chronic low back pain during five tasks.

METHOD:

The participants were 20 volunteers, 10 with and 10 without nonspecific chronic low back pain, mean age 34 years, 50% females. The participants completed the following balance tasks on a force platform in random order: (1) two-legged stance with eyes open, (2) two-legged stance with eyes closed, (3) semi-tandem with eyes open, (4) semi-tandem with eyes closed and (5) one-legged stance with eyes open. The participants completed three 60-s trials of tasks 1-4, and three 30-s trials of task 5 with 30-s rests between trials. The center of pressure area, velocity and frequency in the antero-posterior and medio-lateral directions were computed during each task, and compared between groups and tasks.

RESULTS:

Participants with chronic low back pain presented significantly larger center of pressure area and higher velocity than the healthy controls ($p < 0.001$). There were significant differences among tasks for all center of pressure variables ($p < 0.001$). Semi-tandem (tasks 3 and 4) and one-leg stance (task 5) were more sensitive to identify balance impairments in the chronic low back pain group than two-legged stance tasks 1 and 2 (effect size >1.37 vs. effect size <0.64). There were no significant interactions between groups and tasks.

CONCLUSIONS:

Individuals with chronic low back pain presented poorer postural control using center of pressure measurements than the healthy controls, mainly during more challenging balance tasks such as semi-tandem and one-legged stance conditions. Implications for Rehabilitation People with chronic low back had poorer balance than those without it. Balance tasks need to be sensitive to capture impairments. Balance assessments during semi-tandem and one-legged stance were the most sensitive tasks to determine postural control deficit in people with chronic low back. Balance assessment should be included during rehabilitation programs for individuals with chronic low back pain for better clinical decision making related to balance re-training as necessary.

Conservative care

Appl Health Econ Health Policy. 2017 Apr;15(2):173-201. doi: 10.1007/s40258-016-0268-8.

Cost-Effectiveness of Non-Invasive and Non-Pharmacological Interventions for Low Back Pain: a Systematic Literature Review.

Andronis L¹, Kinghorn P², Qiao S², Whitehurst DG^{3,4,5}, Durrell S⁶, McLeod H².

Author information

Abstract

BACKGROUND:

Low back pain (LBP) is a major health problem, having a substantial effect on peoples' quality of life and placing a significant economic burden on healthcare systems and, more broadly, societies. Many interventions to alleviate LBP are available but their cost effectiveness is unclear.

OBJECTIVES:

To identify, document and appraise studies reporting on the cost effectiveness of non-invasive and non-pharmacological treatment options for LBP.

METHODS:

Relevant studies were identified through systematic searches in bibliographic databases (EMBASE, MEDLINE, PsycINFO, Cochrane Library, CINAHL and the National Health Service Economic Evaluation Database), 'similar article' searches and reference list scanning. Study selection was carried out by three assessors, independently. Study quality was assessed using the Consensus on Health Economic Criteria checklist. Data were extracted using customized extraction forms.

RESULTS:

Thirty-three studies were identified. Study interventions were categorised as: (1) combined physical exercise and psychological therapy, (2) physical exercise therapy only, (3) information and education, and (4) manual therapy. Interventions assessed within each category varied in terms of their components and delivery. In general, combined physical and psychological treatments, information and education interventions, and manual therapies appeared to be cost effective when compared with the study-specific comparators. There is inconsistent evidence around the cost effectiveness of physical exercise programmes as a whole, with yoga, but not group exercise, being cost effective.

CONCLUSIONS:

The identified evidence suggests that combined physical and psychological treatments, medical yoga, information and education programmes, spinal manipulation and acupuncture are likely to be cost-effective options for LBP.

Changes that occur

Biomed Res Int. 2017;2017:2562957. doi: 10.1155/2017/2562957. Epub 2017 Mar 20.

The Association between Imaging Parameters of the Paraspinal Muscles, Spinal Degeneration, and Low Back Pain.

Kalichman L¹, Carmeli E², Been E^{3,4}.

Author information

Abstract

This narrative review investigated imaging parameters of the paraspinal muscles and their association with spinal degenerative features and low back pain (LBP) found in the literature.

Three principal signs of muscle degeneration were detected on imaging: decreased muscle size, decreased radiographic density, and increased fat deposits. Men have a higher density of paraspinal muscles than women, younger individuals have a higher density than older ones, and lean individuals have a higher density than those with an increased body mass index. Fatty infiltration appears to be a late stage of muscular degeneration and can be measured noninvasively by an MRI scan. Fatty infiltration in the lumbar multifidus is common in adults and is strongly associated with LBP, especially in women, independent of body composition. Fatty infiltration develops in areas where most degenerative changes are found. MR spectroscopy studies have corroborated that the lumbar multifidus in LBP subjects has a significantly higher fat content than asymptomatic controls.

There is a strong need for establishing uniform methods of evaluating normal parameters and degenerative changes of the paraspinal muscles. Additional imaging studies are needed to improve the understanding of the association and causal relationships between LBP, spinal degeneration, and changes in the paraspinal muscles.

Sensory discrimination

Clin J Pain. 2017 Mar 21. doi: 10.1097/AJP.0000000000000499.

Lumbar Tactile Acuity in Patients With Low Back Pain and Healthy Controls: Systematic Review and Meta-Analysis.

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Author information

Abstract

OBJECTIVE:

Diminished tactile acuity in chronic non-neuropathic pain syndromes has been attributed to central pain processing and cortical reorganization. The latter was recently targeted in clinical trials that demonstrated no clear advantages over traditional approaches for the reduction of nonspecific low back pain (LBP). The aim of this systematic review and meta-analysis was to summarize the current evidence on tactile acuity in LBP and pain-free controls.

METHODS:

Six databases were independently searched by 2 researchers. Nineteen studies with either case-control, cross-sectional, or baseline lumbar tactile acuity data collected before an intervention were included in the qualitative and quantitative synthesis. All pooled analyses were based on random effects models. Risk of bias was assessed using the Downs and Black scale and selection criteria were verified independently by 2 assessors.

RESULTS:

Data on patients (n=547) and controls (n=346) were summarized. Studies on patients included data on nonspecific chronic LBP only; no data on acute LBP were identified. There was a significant mean difference between patients and controls for lumbar tactile acuity including (11.74 mm; 95% confidence interval, 8.61-14.87) and excluding (9.49 mm; 95% confidence interval, 3.64-15.34) higher risk of bias studies.

DISCUSSION:

A gap of knowledge regarding tactile acuity in populations with acute and chronic non-neuropathic LBP needs to be addressed in future research as this may significantly help the understanding of the causality of tactile acuity alterations.

Guidelines for conservative care

Eur Spine J. 2017 Apr 20. doi: 10.1007/s00586-017-5099-2.

National Clinical Guidelines for non-surgical treatment of patients with recent onset low back pain or lumbar radiculopathy.

Stochkendahl MJ^{1,2,3}, Kjaer P^{4,5}, Hartvigsen J^{4,6}, Kongsted A^{4,6}, Aaboe J⁵, Andersen M⁷, Andersen MØ⁸, Fournier G⁹, Højgaard B^{5,10}, Jensen MB¹¹, Jensen LD¹², Karbo T¹³, Kirkeskov L¹⁴, Melbye M¹⁵, Morsel-Carlsen L^{16,17}, Nordsteen J¹⁸, Palsson TS¹⁹, Rasti Z¹⁶, Silbye PF²⁰, Steiness MZ²¹, Tarp S^{5,22}, Vaagholt M²³.

Author information

Abstract

PURPOSE:

To summarise recommendations about 20 non-surgical interventions for recent onset (<12 weeks) non-specific low back pain (LBP) and lumbar radiculopathy (LR) based on two guidelines from the Danish Health Authority.

METHODS:

Two multidisciplinary working groups formulated recommendations based on the GRADE approach.

RESULTS:

Sixteen recommendations were based on evidence, and four on consensus. Management of LBP and LR should include information about prognosis, warning signs, and advise to remain active. If treatment is needed, the guidelines suggest using patient education, different types of supervised exercise, and manual therapy. The guidelines recommend against acupuncture, routine use of imaging, targeted treatment, extraforaminal glucocorticoid injection, paracetamol, NSAIDs, and opioids.

CONCLUSION:

Recommendations are based on low to moderate quality evidence or on consensus, but are well aligned with recommendations from international guidelines. The guideline working groups recommend that research efforts in relation to all aspects of management of LBP and LR be intensified.

5. SURGERY

Implications of FBS

J Pain Res. 2017 Apr 6;10:811-823. doi: 10.2147/JPR.S129295. eCollection 2017.

Prevalence, characteristics, and burden of failed back surgery syndrome: the influence of various residual symptoms on patient satisfaction and quality of life as assessed by a nationwide Internet survey in Japan.

Inoue S^{1,2}, Kamiya M², Nishihara M¹, Arai YP^{1,3}, Ikemoto T^{1,3}, Ushida T^{1,3}.

Author information

Abstract

We conducted a cross-sectional, Internet-based survey with a nationally representative sample of Japanese adults to assess the prevalence and characteristics of failed back surgery syndrome (FBSS).

Data regarding the residual symptoms and patient satisfaction from an online survey of 1842 lumbar surgery patients revealed the prevalence of FBSS to be 20.6% (95% confidence interval [CI], 18.8-22.6). The prevalence of low back pain, dull ache, numbness, cold sensations, and paresthesia after surgery was 94.0%, 71.1%, 69.8%, 43.3%, and 35.3%, respectively. With a logistic regression model, severe residual low back pain (numerical rating scale 8-10), higher pain intensity, and multiple low back surgeries were strongly associated with FBSS, with odds ratios of 15.21 (95% CI, 7.79-29.7), 1.40 (95% CI, 1.32-1.49), and 1.87 (95% CI, 1.25-2.81), respectively. Respondents with FBSS had significantly lower EuroQol-5D ($P<0.001$) values and significantly higher scores on the Kessler six-item psychological distress scale ($P<0.001$), compared with the non-FBSS group.

Our findings indicate that residual sensations have a significant effect on patient quality of life, similar to that of chronic low back pain. Precise presurgical provision of prognoses based on comprehensive epidemiologic data, as well as scrupulous attention to patient satisfaction and clinical progress may help reduce the incidence of FBSS

During pregnancy

Eur Spine J. 2017 Apr 20. doi: 10.1007/s00586-017-5040-8.

How to treat lumbar disc herniation in pregnancy? A systematic review on current standards.

Di Martino A¹, Russo F², Denaro L³, Denaro V².

Author information

Abstract

PURPOSE:

In this systematic review, we aim to illustrate the current and safe concepts in the assessment, diagnosis and management of herniated lumbar disc (HLD) during pregnancy.

METHODS:

A systematic review and reporting on the diagnosis, treatment and clinical results of HLD during pregnancy is performed.

RESULTS:

The MRI represents the first level and safest diagnostic tool for pregnant women affected by spinal problems allowing for a noninvasive and detailed radiological examination of the spine. The initial management of pregnant women affected by HLD is conservative, and primarily aimed to pain therapy. Whenever radicular pain and progressive neurological deficits unresponsive to medical management occur, surgery should be considered. Few case reports regarding the operative management of HLD in pregnant women have been published up to date. Laminectomy and/or microdiscectomy represent the classical and most commonly used techniques that can be safely performed without affecting pregnancy, delivery, or baby's health. Endoscopic discectomy may be an alternative. The most adequate timing and surgical position are chosen based on to the fetal gestational age and site of the pathology.

CONCLUSIONS:

Surgical treatments during pregnancy impose multiple medical and ethical problems. Timely diagnosis by MRI, careful clinical evaluation, and surgical treatment represent safe and effective procedures. Ongoing evolution of surgical, anesthesiological and obstetrical procedures results in favorable outcomes. However, interdisciplinary management and a wide knowledge of pregnancy-related pathologies are crucial for the best outcome for both mother and child.

6. PELVIC GIRDLE

Coccygectomy

An evaluation of two different methods of coccygectomy in patients with traumatic coccydynia

Authors Ogur HU, Seyfettinoğlu F, Tuhanioğlu Ü, Cicek H, Zohre S

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DOI <https://doi.org/10.2147/JPR.S129198>

Purpose: The aim of this study was to evaluate the results of partial and total coccyx excisions in patients with traumatic coccydynia resistant to conservative treatment.

Patients and methods: The study included 22 patients (from a total of 27) who underwent partial or total coccygectomy because of persistent coccydynia between December 2007 and January 2014. There were 15 females and 7 males with a mean age of 33.6 years (range 23–46 years). Partial coccygectomy was performed in 14 patients and total coccygectomy in 8. They were evaluated according to their pre- and postoperative visual analog scale (VAS) scores. The mean follow-up period was 28 months (range 16–48 months).

Results: The mean VAS scores in the total excision group were 8.88 ± 0.64 preoperatively and 2.5 ± 2.67 at the final postoperative follow-up examination. In the partial excision group, these values were 8.79 ± 0.89 preoperatively and 2.5 ± 2.85 postoperatively. No statistically significant difference was determined between the two groups with respect to the mean scores ($p > 0.05$). No rectum injury was seen in any patient. When the VAS scores of the patients were evaluated as a whole, excellent and good results were obtained in 78%. Patient satisfaction with the operation was 90%.

Conclusion: Coccyx excision is a successful treatment method in patients with long-term coccydynia who are resistant to conservative treatment. Two different surgical methods can be applied in the treatment and both of them have low complication rates and high patient satisfaction.

Keywords: partial excision, total excision, coccyx, visual analog scale

7. PELVIC ORGANS/WOMAN'S HEALTH

Incontinence and sex

Int J Colorectal Dis. 2017 Mar 15. doi: 10.1007/s00384-017-2795-7.

Evaluation of sexual dysfunction in female patients presenting with faecal incontinence or defecation disorder.

Pellino G1, Ramage L1, Simillis C1, Warren O1, Kontovounisios C2,3, Tan E1,4, Tekkis P1.

PURPOSE:

Female patients with pelvic floor diseases may suffer from several sexual disorders and sexual life impairments. The aim of this manuscript was to evaluate sexual dysfunction in female patients presenting with faecal incontinence (FI) and defecation disorder (DD).

METHODS:

A retrospective review was performed of a prospectively collected database of sexually active women referred to the pelvic floor clinic, who completed the Pelvic Organ Prolapse/Incontinence Sexual Questionnaire-12 (PISQ-12) at first visit. Statistical analysis was performed to evaluate and compare sexual dysfunction between patients with FI and DD and with published data on the general population. Regression analysis was used to identify predictors of sexual dysfunction and surgery.

RESULTS:

Three hundred thirteen patients were included, 192 (61%) with FI and 121 (39%) with DD. The patients with DD received more non-gynaecological surgical procedures ($p = 0.023$). More patients with DD received surgery for their current pelvic floor disease ($p < 0.001$). Major sexual impairment (PISQ-12 < 30) was found in 100 patients (31.9%). The mean PISQ-12 (33.2 ± 7.2) score was by 5 points lower than those reported in the general population from PISQ-validating studies. Prior anorectal surgery (odds ratio (OR) = 15.4), partner ejaculation problems (PISQ item 11, OR = 2.5), reduced sexual arousal (item 2, OR = 2.1), and orgasm perception (item 13, OR = 2.1) were the strongest predictors of worse sexual function in patients with FI. Patients with DD were almost 15 times more likely to receive subsequent surgery (OR = 14.6, $p < 0.001$), whereas fear of urine leakage almost doubled the risk.

CONCLUSIONS:

Sexual dysfunction is prevalent among patients suffering from FI and DD, and questionnaires are useful in recognizing these patients. Subsequent surgery is more common for patients with DD compared to those with FI.

Bladder pain and diet

Clinical efficacy of 1-year intensive systematic dietary manipulation as complementary and alternative medicine therapies on female interstitial cystitis/bladder pain syndrome patients

Urology Oh-oka H

The clinical efficacy of intensive systematic dietary manipulation (ISDM) was investigated in female patients with interstitial cystitis (IC)/bladder pain syndrome (BPS). The outcomes revealed that ISDM alleviates the symptoms of IC/BPS in almost 3 months and continued clinical efficacy for at least 1 year. Hence, ISDM must be considered as one of the conservative treatment modality for IC/BPS.

Methods

- In cooperation with the nutrition control team, the authors created a basic IC/BPS diet menu for 1 month.
- Data regarding daily food intake and food-related symptoms were collected by detailed interview of each patient, they set meal menu to control IC/BPS symptoms and advised the patients to reduce the intake of specific food items to the maximum possible extent.
- The following food items were removed from or restricted in the diet of patients: tomatoes, tomato products, soybean, tofu product, spices, excessive potassium, citrus, high-acidity-inducing substances, etc.
- They evaluated the following factors 3 months and 1 year after the start of the intervention: O'Leary-Sant symptom index, O'Leary-Sant problem index, urgency visual analogue scale score, bladder or pelvic pain visual analogue scale score, and numerical patient-reported quality of life index.

Results

- In findings, all evaluated factors improved statistically significant compared to non-intensive group (baseline to 3month and 3 month to 1 year ISDM, $p < 0.05$, respectively).

8. VISCERA

Prostatitis

BMC Urol. 2017 Apr 21;17(1):32. doi: 10.1186/s12894-017-0223-5.

The role of flower pollen extract in managing patients affected by chronic prostatitis/chronic pelvic pain syndrome: a comprehensive analysis of all published clinical trials.

Cai T¹, Verze P², La Rocca R², Anceschi U³, De Nunzio C⁴, Mirone V².

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BACKGROUND:

Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is still a challenge to manage for all physicians. We feel that a summary of the current literature and a systematic review to evaluate the therapeutic efficacy of flower pollen extract would be helpful for physicians who are considering a phytotherapeutic approach to treating patients with CP/CPPS.

METHODS:

A comprehensive search of the PubMed and Embase databases up to June 2016 was performed. This comprehensive analysis included both pre-clinical and clinical trials on the role of flower pollen extract in CP/CPPS patients. Moreover, a meta-analysis of available randomized controlled trials (RCTs) was performed. The NIH Chronic Prostatitis Symptom Index (NIH-CPSI) and Quality of Life related questionnaires (QoL) were the most commonly used tools to evaluate the therapeutic efficacy of pollen extract.

RESULTS:

Pre-clinical studies demonstrated the anti-inflammatory and anti-proliferative role of pollen extract. 6 clinical, non-controlled studies including 206 patients, and 4 RCTs including 384 patients were conducted. The mean response rate in non-controlled studies was 83.6% (62.2%-96.0%). The meta-analysis revealed that flower pollen extract could significantly improve patients' quality of life [OR 0.52 (0.34-0.81); p = 0.02]. No significant adverse events were reported.

CONCLUSION:

Most of these studies presented encouraging results in terms of variations in NIH-CPSI and QoL scores. These studies suggest that the use of flower pollen extract for the management of CP/CPPS patients is beneficial. Future publications of robust evidence from additional RCTs and longer-term follow-up would provide more support encouraging the use of flower pollen extracts for CP/CPPS patients.

Oats and gluten free

Safety of adding oats to a gluten-free diet for patients with celiac disease: Systematic review and meta-analysis of clinical and observational studies

Gastroenterology

PintoSanchez MI, et al.

This meta-analysis aimed to assess the safety of oats as part of a gluten-free diet (GFD) in patients with celiac disease. In patients with celiac disease, the clinicians found no evidence that addition of oats to a GFD affects symptoms, histology, immunity, or serologic features, however, there were few studies for many endpoints, as well as limited geographic distribution and low quality of evidence. Using commonly available oats sourced from different regions, rigorous double-blind, placebo-controlled, randomized controlled trials are needed.

Methods

For this study, the physicians searched the Cochrane Central Register of Controlled Trials, MEDLINE, and EMBASE databases for clinical trials and observational studies of the effects of including oats in GFD of patients with celiac disease.

The studies described patients' symptoms, results from serology tests, and findings from histologic analyses.

To evaluate the quality of evidence, they used the GRADE approach.

Results

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

As per the outcomes, the overall quality of evidence was low.

Western diet and CA

Cancer Res. 2017 Apr 17. pii: canres.2860.2016. doi: 10.1158/0008-5472.CAN-16-2860.

Western diet deregulates bile acid homeostasis, cell proliferation and tumorigenesis in colon.

Dermadi D1, Valo S2, Ollila S3, Soliymani R4, Sipari N5, Pussila M6, Sarantaus L7, Linden J8, Baumann M4, Nyström M2.

Western-style diets (WD) high in fat and scarce in fiber and vitamin D increase risks of colorectal cancer (CRC).

Here we performed a long-term diet study in mice to follow tumorigenesis and characterize structural and metabolic changes in colon mucosa associated with WD and predisposition to CRC. WD increased colon tumor numbers and mucosa proteomic analysis indicated severe deregulation of intracellular bile acid (BA) homeostasis and activation of cell proliferation. WD also increased crypt depth and colon cell proliferation. Despite increased luminal BA, colonocytes from WD-fed mice exhibited decreased expression of the BA transporters FABP6, OST β and ASBT and decreased concentrations of secondary BA deoxycholic acid and lithocholic acid, indicating reduced activity of the nuclear BA receptor FXR.

Overall, our results suggest that WD increases cancer risk by FXR inactivation leading to BA deregulation and increased colon cell proliferation.

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PMID: 28416481 DOI: 10.1158/0008-5472.CAN-16-2860

Probiotics and constipation**The effect of probiotics as a treatment for constipation in elderly people: a systematic review**

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DOI: <http://dx.doi.org/10.1016/j.archger.2017.04.004>**Highlights**

- Intestinal microbiota and gut function change with aging.
- Prevalence of functional constipation increases in older individuals.
- Different strains of probiotics induced beneficial effects in chronic constipation in elderly.
- Future clinical trials with larger sample are required before recommend the widespread use for treating constipation.

Purpose

Treating constipation in elderly people remains a challenge; the administration of probiotics may be a valid therapy for this problem as an alternative to traditional drug-based treatments. The objective of this systematic review was to evaluate the efficiency of probiotics in treating constipation in elderly people.

Methods

Articles related to this topic and published, without any time limitations, in the Medline, Embase, Scopus, Lilacs, or Cochrane databases were systematically reviewed according to Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines. The primary search terms were ‘constipation’ and ‘probiotics’. The main inclusion criteria were: 1) the article was original and the whole text was published in English or Spanish and 2) included the primary search terms in the title, summary, or body text; 3) the studies had to have included 60 or more participants defined as ‘elderly’ and 4) have specifically evaluated the effect of the administration of probiotics.

Results

Of the 475 articles consulted, 9 met the inclusion criteria. Among the selected studies, there were four randomised and placebo-controlled trials and the remaining five reports were observational. Overall, our analysis of the randomised and placebo-controlled trials suggests that administration of probiotics significantly improved constipation in elderly individuals by 10–40% compared to placebo controls in which no probiotic was administered. The strain of bacteria most commonly tested was *Bifidobacterium longum*. However, caution is needed when interpreting these reports because of the heterogeneity of the original study designs, populations, and the risk of bias. Therefore, further placebo-controlled trials are necessary to determine the most efficient strains, doses, and the optimal treatment duration.

IBS and life experiences

Eur J Gastroenterol Hepatol. 2017 May;29(5):577-586. doi: 10.1097/MEG.0000000000000826.

Effect of threatening life experiences and adverse family relations in ulcerative colitis: analysis using structural equation modeling and comparison with Crohn's disease.

Slonim-Nevo V1, Sarid O, Friger M, Schwartz D, Sergienko R, Pereg A, Vardi H, Singer T, Chernin E, Greenberg D, Odes S; Israeli IBD Research Nucleus (IIRN).

BACKGROUND AND AIMS:

We published that threatening life experiences and adverse family relations impact Crohn's disease (CD) adversely. In this study, we examine the influence of these stressors in ulcerative colitis (UC).

PATIENTS AND METHODS:

Patients completed demography, economic status (ES), the Patient-Simple Clinical Colitis Activity Index (P-SCCAI), the Short Inflammatory Bowel Disease Questionnaire (SIBDQ), the Short-Form Health Survey (SF-36), the Brief Symptom Inventory (BSI), the Family Assessment Device (FAD), and the List of Threatening Life Experiences (LTE). Analysis included multiple linear and quantile regressions and structural equation modeling, comparing CD.

RESULTS:

UC patients (N=148, age 47.55±16.04 years, 50.6% women) had scores [median (interquartile range)] as follows: SCAAI, 2 (0.3-4.8); FAD, 1.8 (1.3-2.2); LTE, 1.0 (0-2.0); SF-36 Physical Health, 49.4 (36.8-55.1); SF-36 Mental Health, 45 (33.6-54.5); Brief Symptom Inventory-Global Severity Index (GSI), 0.5 (0.2-1.0). SIBDQ was 49.76±14.91. There were significant positive associations for LTE and SCAAI (25, 50, 75% quantiles), FAD and SF-36 Mental Health, FAD and LTE with GSI (50, 75, 90% quantiles), and ES with SF-36 and SIBDQ. The negative associations were as follows: LTE with SF-36 Physical/Mental Health, SIBDQ with FAD and LTE, ES with GSI (all quantiles), and P-SCCAI (75, 90% quantiles). In structural equation modeling analysis, LTE impacted ES negatively and ES impacted GSI negatively; LTE impacted GSI positively and GSI impacted P-SCCAI positively. In a split model, ES had a greater effect on GSI in UC than CD, whereas other path magnitudes were similar.

CONCLUSION:

Threatening life experiences, adverse family relations, and poor ES make UC patients less healthy both physically and mentally. The impact of ES is worse in UC than CD.

PMID: 28350749 DOI: 10.1097/MEG.0000000000000826

Transit time enhancer

J Gastroenterol Hepatol. 2017 Apr 21. doi: 10.1111/jgh.13807.

DA-9701 improves colonic transit time and symptoms in patients with functional constipation: A prospective study.

Kim SY¹, Woo HS¹, Choi SH¹, Park DK¹, Kwon KA¹, Chung JW¹, Kim YJ¹, Kim JH¹, Kim SJ¹, Kim KO¹.

BACKGROUND AND AIM:

DA-9701, a newly developed prokinetic agent formulated with Pharbitis Semen and Corydalis Tuber, has been shown to effectively treat functional dyspepsia. Recently, it has also been suspected to improve gastrointestinal motor function. The aims of this study were to assess the effect of DA-9701 on colonic transit time (CTT) and symptoms of functional constipation.

METHODS:

We prospectively enrolled 33 patients with functional constipation based on the Rome III criteria. The patients received 30 mg DA-9701 three times a day for 24 days. CTT was estimated initially and at the end of treatment. We also analyzed symptoms such as spontaneous bowel movements (SBMs), straining, stool form, feeling of incomplete emptying and anorectal blockage, abdominal discomfort and pain, overall defecation satisfaction, and incidence of adverse events.

RESULTS:

Twenty-seven patients completed the study. DA-9701 was associated with a significantly reduced CTT from 34.9 ± 17.6 to 23.7 ± 19.1 hours ($P = 0.001$). Segmental CTT also significantly decreased after treatment (right CTT: from 16.8 [0.0 - 28.8] to 6.0 [0.0 - 25.2] hours, $P < 0.001$; rectosigmoid transit time: from 13.2 [0.0 - 38.4] to 6.0 [0.0 - 33.6] hours, $P = 0.021$). In addition, all constipation-related subjective symptoms, including SBM frequency, significantly improved compared to those before treatment. Serious adverse events did not occur.

CONCLUSIONS:

DA-9701 accelerates colonic transit and safely improves symptoms in patients with functional constipation. Therefore, we suggest that this novel agent could help to treat patients with this condition.

Crohn's disease**Impact of vitamin D on the hospitalization rate of Crohn's disease patients seen at a tertiary care center****World Journal of Gastroenterology****Venkata KVR, et al.**

In this study, the authors examine the association between vitamin D level and hospitalization rate in Crohn's disease (CD) patients. In the clinical course of CD, normal or adequate vitamin D stores may be protective. This role, however, needs to be further characterized and understood.

Methods

- The authors planned a retrospective cohort study using adult patients (> 19 years) with CD followed for at least 1 year at their inflammatory bowel disease center.
- They divided vitamin D levels into: low mean vitamin D level (< 30 ng/mL) vs appropriate mean vitamin D level (30-100 ng/mL).
- They used Generalized Poisson Regression Models (GPR) for Rate Data to estimate partially adjusted and fully adjusted incidence rate ratios (IRR) of hospitalization among CD patients.
- Also, they examined IRRs for vitamin D level as a continuous variable.

Results

- The authors included 196 patients with vitamin D level during the observation period, out of the 880 CD patients.
- Partially adjusted model showed that compared to those with an appropriate vitamin D level, CD patients with a low mean vitamin D level were almost twice more likely to be admitted (IRR = 1.76, 95%CI: 1.38-2.24).
- The fully adjusted model affirmed this relationship (IRR = 1.44, 95%CI: 1.11-1.87).
- As a continuous variable, partially adjusted model with vitamin D level demonstrated, higher mean vitamin D level was associated with a 3% lower likelihood of admission with every unit (ng/mL) rise in mean vitamin D level (IRR = 0.97, 95%CI: 0.96-0.98).
- This relationship was affirmed by fully adjusted model (IRR = 0.98, 95%CI: 0.97-0.99).

9. THORACIC SPINE

Surgical impact

Anesthesiology. 2017 May;126(5):938-951. doi: 10.1097/ALN.0000000000001576.

A Prospective Study of Chronic Pain after Thoracic Surgery.

Bayman EO¹, Parekh KR, Keech J, Selte A, Brennan TJ.

Author information

Abstract

BACKGROUND:

The goal of this study was to detect the predictors of chronic pain at 6 months after thoracic surgery from a comprehensive evaluation of demographic, psychosocial, and surgical factors.

METHODS:

Thoracic surgery patients were enrolled 1 week before surgery and followed up 6 months postsurgery in this prospective, observational study. Comprehensive psychosocial measurements were assessed before surgery. The presence and severity of pain were assessed at 3 and 6 months after surgery. One hundred seven patients were assessed during the first 3 days after surgery, and 99 (30 thoracotomy and 69 video-assisted thoracoscopic surgery, thoracoscopy) patients completed the 6-month follow-up. Patients with versus without chronic pain related to thoracic surgery at 6 months were compared.

RESULTS:

Both incidence ($P = 0.37$) and severity ($P = 0.97$) of surgery-related chronic pain at 6 months were similar after thoracotomy (33%; 95% CI, 17 to 53%; 3.3 ± 2.1) and thoracoscopy (25%; 95% CI, 15 to 36%; 3.3 ± 1.7). Both frequentist and Bayesian multivariate models revealed that the severity of acute pain (numerical rating scale, 0 to 10) is the measure associated with chronic pain related to thoracic surgery. Psychosocial factors and quantitative sensory testing were not predictive.

CONCLUSIONS:

There was no difference in the incidence and severity of chronic pain at 6 months in patients undergoing thoracotomy versus thoracoscopy. Unlike other postsurgical pain conditions, none of the preoperative psychosocial measurements were associated with chronic pain after thoracic surgery.

10 A. CERVICAL SPINE

Cervical ROM and strength validity

J Strength Cond Res. 2017 Apr;31(4):1087-1096. doi: 10.1519/JSC.0000000000001578.

Reliability and Validity of Cervical Range of Motion and Muscle Strength Testing.

Kubas C¹, Chen YW, Echeverri S, McCann SL, Denhoed MJ, Walker CJ, Kennedy CN, Reid WD

J Strength Cond Res 31(4): 1087-1096, 2017-

Cervical range of motion (ROM) and strength are fundamental measures to assess treatment effectiveness.

The JTECH wireless devices provide versatile means of quantifying these measurements. The purpose of this study was to determine intrarater and interrater reliabilities and concurrent validity of the JTECH wireless dual inclinometer and handheld dynamometer. This study included 20 healthy subjects (mean age = 28.7 ± 7.8 years). The directions of ROM movement measured were cervical flexion, extension, lateral flexion, and rotation. Isometric strength was measured for flexion, extension, and lateral flexion. Two testers measured cervical ROM and isometric strength for each subject using the JTECH devices during 2 or 3 sessions to determine reliability. The same ROM and muscle strength movements were measured using the CROM3 and MicroFET2, respectively, to assess concurrent validity. Reliability and validity were analyzed using intraclass correlation coefficient (ICC), along with SEM and minimal detectable change. The results of this study showed that the intrarater reliability of the JTECH inclinometer and dynamometer was moderate to excellent (ICCs (3,1) = 0.53-0.90 and 0.74-0.91, respectively).

The interrater reliability of the JTECH inclinometer was moderate to excellent (ICCs (2,3) = 0.69-0.89), whereas the JTECH dynamometer showed excellent interrater reliability (ICCs (2,3) = 0.84-0.88). The JTECH inclinometer and dynamometer showed moderate to excellent concurrent validity (ICCs (3,2) = 0.65-0.91 and 0.91-0.96, respectively). With the ease of use, portability, and ability to record multiple measurements without stopping, these devices can be applied to clinical and research settings.

Two-point discrimination

Clin J Pain. 2017 May;33(5):422-428. doi: 10.1097/AJP.0000000000000421.

Cluster Analysis of an International Pressure Pain Threshold Database Identifies 4 Meaningful Subgroups of Adults With Mechanical Neck Pain.

Walton DM¹, Kwok TS, Mehta S, Loh E, Smith A, Elliott J, Kamper SJ, Kasch H, Sterling M.

OBJECTIVE:

To determine pressure pain detection threshold (PPDT) related phenotypes of individuals with mechanical neck pain that may be identifiable in clinical practice.

METHODS:

This report describes a secondary analysis of 5 independent, international mechanical neck pain databases of PPDT values taken at both a local and distal region (total N=1176). Minor systematic differences in mean PPDT values across cohorts necessitated z-transformation before analysis, and each cohort was split into male and female sexes. Latent profile analysis (LPA) using the k-means approach was undertaken to identify the most parsimonious set of PPDT-based phenotypes that were both statistically and clinically meaningful.

RESULTS:

LPA revealed 4 distinct clusters named according to PPDT levels at the local and distal zones: low-low PPDT (67%), mod-mod (25%), mod-high (4%), and high-high (4%). Secondary predictor variables were evaluated for intracluster and cross-cluster significance. Low-low cluster was most affected, as indicated by pain intensity, disability, and catastrophization scores all significantly above the cohort-specific and sex-specific mean, and active range of motion scores significantly below the mean.

DISCUSSION:

The results suggest that there are a large proportion of people with neck pain that present with signs indicating dysfunction beyond the local tissues. Ongoing exploration of these presentations may lead to more informed management and improved outcomes.

13. CRANIUM/TMJ

Oral pharyngeal pressure

Influence of pharyngeal airway respiration pressure on Class II mandibular retrusion in children: A computational fluid dynamics study of inspiration and expiration

Authors

- T. Iwasaki, H. Sato, . Suga, Y. Takemoto, E. Inada, I. Saitoh, K. Kakuno, R. Kanomi, Y. Yamasaki
- **DOI:** 10.1111/ocr.12145

Objectives

To examine the influence of negative pressure of the pharyngeal airway on mandibular retraction during inspiration in children with nasal obstruction using the computational fluid dynamics (CFD) method.

Setting and Sample Population

Sixty-two children were divided into Classes I, II (mandibular retrusion) and III (mandibular protrusion) malocclusion groups.

Material and Methods

Cone-beam computed tomography data were used to reconstruct three-dimensional shapes of the nasal and pharyngeal airways. Airflow pressure was simulated using CFD to calculate nasal resistance and pharyngeal airway pressure during inspiration and expiration.

Results

Nasal resistance of the Class II group was significantly higher than that of the other two groups, and oropharyngeal airway inspiration pressure in the Class II (-247.64 Pa) group was larger than that in the Class I (-43.51 Pa) and Class III (-31.81 Pa) groups ($P < .001$). The oropharyngeal airway inspiration–expiration pressure difference in the Class II (-27.38 Pa) group was larger than that in the Class I (-5.17 Pa) and Class III (0.68 Pa) groups ($P = .006$).

Conclusion

Large negative inspiratory pharyngeal airway pressure due to nasal obstruction in children with Class II malocclusion may be related to their retrognathia.

Normal condylar placement

Dent Res J (Isfahan). 2012 Sep;9(5):607-12.

Assessing joint space and condylar position in the people with normal function of temporomandibular joint with cone-beam computed tomography.

Dalili Z¹, Khaki N, Kia SJ, Salamat F.

BACKGROUND:

The optimal position of the condyle in glenoid fossa is a fundamental question in dentistry. There is no quantitative standard for the optimal position of mandibular condyle in the glenoid fossa in our population. The purpose of this study is to assess the position of the condyle by cone beam computed tomography (CBCT) images in patient with normal function of temporomandibular joint (TMJ).

MATERIALS AND METHODS:

In this cross-sectional study, CBCT images of 40 class I skeletal patients (15 males and 25 females) without history of TMJ disorders were selected. Next, the anterior, superior and posterior joint spaces (Ajs, Sjs, Pjs) were measured on the two true central sagittal slices. Then medial (M) and lateral (L) joint spaces on true coronal view were measured in the right and left sides, separately. After that, P/A ratio, S/A ratio and M/L ratio were calculated. Finally, a paired t-test and independent samples t-test were employed for analysis.

RESULTS:

The centric position of the condyle in glenoid fossa was more common (92.5%) than other positions. Significant differences in Ajs, Sjs, Pjs, Mjs and Ljs values between two sides were observed ($P \leq 0.05$). Additionally, Sjs showed statistically significant differences between the sexes ($P = 0.05$). P/A ratio and S/A ratio had significant differences between two sides but not between those sexes.

CONCLUSION:

The assessment of joint spaces in right and left sides should be done independently. Overall, the measured joint spaces except Sjs are not different in two sexes. The data from this study could be a useful and comparable reference for the clinical assessment of condylar position in patients with normal functional joints.

Alzheimer's and periodontal disease

Oral Health Prev Dent. 2017;15(1):7-12. doi: 10.3290/j.ohpd.a37708.

A Potential Role of Periodontal Inflammation in Alzheimer's Disease: A Review.

Ganesh P, Karthikeyan R, Muthukumaraswamy A, Anand J.

Periodontitis, the chronic inflammatory disease of the supporting tissues of the teeth, has now been implicated in a variety of disparate systemic infections of various organs such as the lungs, heart, kidneys and brain.

This review examines various associations involving chronic inflammatory processes arising from the periodontium and Alzheimer's disease, a progressive dementia of the brain with an as yet unknown origin. Causal pathways are also reviewed, e.g. the direct invasion of oral pathogens such as *T. socranski* and *T. denticola* from the periodontium across the blood-brain barrier, as well as common susceptibilities between the two tissues in terms of systemic dissemination from oral infections.

Finally, potential anti-inflammatory therapies targeted at both the periodontium and brain are discussed, as periodontal infections are one of the treatable, preventable aetiopathologies involved in Alzheimer's disease.

14. HEADACHES

Physical activity

J Headache Pain. 2017 Dec;18(1):46. doi: 10.1186/s10194-017-0753-y. Epub 2017 Apr 18.

Level of physical activity, well-being, stress and self-rated health in persons with migraine and co-existing tension-type headache and neck pain.

Krøll LS^{1,2}, Hammarlund CS³, Westergaard ML⁴, Nielsen T⁴, Sloth LB⁴, Jensen RH⁴, Gard G³.

Author information

Abstract

BACKGROUND:

The prevalence of migraine with co-existing tension-type headache and neck pain is high in the general population. However, there is very little literature on the characteristics of these combined conditions. The aim of this study was to investigate a) the prevalence of migraine with co-existing tension-type headache and neck pain in a clinic-based sample, b) the level of physical activity, psychological well-being, perceived stress and self-rated health in persons with migraine and co-existing tension-type headache and neck pain compared to healthy controls, c) the perceived ability of persons with migraine and co-existing tension-type headache and neck pain to perform physical activity, and d) which among the three conditions (migraine, tension-type headache or neck pain) is rated as the most burdensome condition.

METHODS:

The study was conducted at a tertiary referral specialised headache centre where questionnaires on physical activity, psychological well-being, perceived stress and self-rated health were completed by 148 persons with migraine and 100 healthy controls matched by sex and average age. Semi-structured interviews were conducted to assess characteristics of migraine, tension-type headache and neck pain.

RESULTS:

Out of 148 persons with migraine, 100 (67%) suffered from co-existing tension-type headache and neck pain. Only 11% suffered from migraine only. Persons with migraine and co-existing tension-type headache and neck pain had lower level of physical activity and psychological well-being, higher level of perceived stress and poorer self-rated health compared to healthy controls. They reported reduced ability to perform physical activity owing to migraine (high degree), tension-type headache (moderate degree) and neck pain (low degree). The most burdensome condition was migraine, followed by tension-type headache and neck pain.

CONCLUSIONS:

Migraine with co-existing tension-type headache and neck pain was highly prevalent in a clinic-based sample. Persons with migraine and co-existing tension-type headache and neck pain may require more individually tailored interventions to increase the level of physical activity, and to improve psychological well-being, perceived stress and self-rated health.

Pain in TT HA's

Pain Med. 2017 Apr 6. doi: 10.1093/pm/pnx047.

Pain Extent Is Associated with the Emotional and Physical Burdens of Chronic Tension-Type Headache, but Not with Depression or Anxiety.

Palacios-Ceña M^{1,2,3}, Barbero M⁴, Falla D⁵, Ghirlanda F⁴, Arend-Nielsen L³, Fernández-de-Las-Peñas C^{1,2,3}.

OBJECTIVE.:

Earlier studies suggest that pain extent, extracted from the patients' pain drawings, can help clinicians to identify people with central sensitization or worse clinical features. Our aim was to investigate possible associations between perceived pain extent and clinical pain features, burden of headache, psychological outcomes, and pressure sensitivity in people with chronic tension-type headache (CTTH).

METHODS.:

Ninety-nine people (27% men) with CTTH reported their pain on four different body charts representing the head and neck. Pain extent and frequency maps were obtained using customized software. Clinical features of headache, burden related to headache (Headache Disability Inventory [HDI]), anxiety and depression (Hospital Anxiety-Depression Scale [HADS]), and anxiety state/trait (State-Trait Anxiety Inventory [STAI]) levels were assessed. Pressure pain thresholds (PPT) were assessed over the temporalis muscle (trigeminal area), the cervical spine (extratrigeminal area), and the tibialis anterior muscle (distant pain-free area) to determine widespread pressure sensitivity. Associations between pain extent and all outcomes were analyzed.

RESULTS.:

Pain extent showed significant positive associations with age ($r = 0.221$, $P = 0.029$) and burden of the headache (emotional: $r = 0.213$, $P = 0.030$; physical: $r = 0.208$, $P = 0.039$), but no other significant association was found.

CONCLUSIONS. :

Pain extent weakly correlated with older age as well as with higher emotional and physical burden of the headache in CTTH. In this population, there was no relationship between pain extent and PPT, indicating that larger pain areas were not associated with signs of central sensitization. Pain drawings can complement other clinical pain features for better characterization of CTTH, but further studies are needed.

16. CONCUSSIONS

C spine involvement

Musculoskelet Sci Pract. 2017 Mar 14;29:91-98. doi: 10.1016/j.msksp.2017.03.002.

Clinical characteristics and outcomes of treatment of the cervical spine in patients with persistent post-concussion symptoms: A retrospective analysis.

Kennedy E¹, Quinn D², Tumilty S³, Chapple CM³.

BACKGROUND:

Concussion is typically defined as a mild brain injury, and yet the brain is unlikely to be the only source of persistent post-concussion symptoms. Concurrent injury to the cervical spine in particular is acknowledged as a potential source of common persistent symptoms such as headache, dizziness and neck pain.

OBJECTIVES:

To describe the cervical spine findings and outcomes of treatment in a series of patients with persistent post-concussion symptoms, and describe the clinical characteristics of a cervicogenic component when it is present.

DESIGN:

Retrospective chart review of a consecutive series of patients with concussion referred to a physiotherapist for cervical spine assessment.

METHOD:

Patient charts for all patients over a calendar year referred by a concussion service provider to a physiotherapist for cervical spine assessment were de-identified and transferred to the research team. Clinical data were independently extracted by two research assistants and analysed using descriptive statistics.

RESULTS/FINDINGS:

Data were analysed from 46 patient charts. Those with a cervicogenic component (n = 32) were distinguished from those without a cervicogenic component (n = 14) by physical examination findings, particularly pain on manual segmental examination. Physiotherapy treatment of the cervicogenic component (n = 21) achieved improvements in function (mean increase of 3.8 in the patient-specific functional scale), and pain (mean decrease of 4.6 in the numeric pain-rating scale).

CONCLUSIONS:

The clinical characteristics described give preliminary support to the idea that the cervical spine may contribute to persistent post-concussion symptoms, and highlight the value of physiotherapy assessment and treatment of the cervical spine following a concussive injury.

19. GLENOHUMERAL/SHOULDER**Shoulder pain and distance**

BMC Musculoskelet Disord. 2017 Apr 4;18(1):136. doi: 10.1186/s12891-017-1498-0.

Is coracohumeral distance associated with pain-function, and shoulder range of movement, in chronic anterior shoulder pain?

Navarro-Ledesma S^{1,2}, Struyf F², Labajos-Manzanares MT¹, Fernandez-Sanchez M³, Luque-Suarez A⁴.

BACKGROUND:

The aim of this study was twofold: (i) to assess the intrarater reliability of coracohumeral distance; (ii) to investigate the level of association between coracohumeral distance measured by ultrasonography, and pain-disability and shoulder range of movement, in patients suffering from chronic anterior shoulder pain.

METHODS:

An observational, cross sectional study was carried out. A convenience sample comprised of 87 patients with chronic anterior shoulder pain was assessed from 3 primary care centres. Main outcomes as pain and function were measured through the shoulder pain and disability index. Furthermore, shoulder range of movement-free of pain in shoulder elevation, as well as coracohumeral distance at both 0 and 60 degrees, were collected.

RESULTS:

Absence of any correlation was found between coracohumeral distance and shoulder pain and disability index at both 0 and 60 degrees of shoulder elevation. Furthermore, absence of any correlation was found between coracohumeral distance measurements and active shoulder range of movement -free of pain.

CONCLUSIONS:

There was poor association between coracohumeral distance and shoulder pain and function, as well as with shoulder range of movement, in patients with chronic anterior shoulder pain. Hence, clinicians should consider, not only increasing this space, but also other possibilities in their therapies, when patients with anterior shoulder pain are treated.

22 A. IMPINGMENT**AH distance**

Musculoskelet Sci Pract. 2017 Mar 9;29:38-42. doi: 10.1016/j.msksp.2017.02.011.

Does the acromiohumeral distance matter in chronic rotator cuff related shoulder pain?

Navarro-Ledesma S¹, Struyf F², Labajos-Manzanares MT³, Fernandez-Sanchez M⁴, Morales-Asencio JM⁵, Luque-Suarez A⁶.

BACKGROUND/HYPOTHESIS:

The relation between acromiohumeral distance (AHD) and severity of pain, disability and range of movement (ROM) in patients with chronic rotator cuff related shoulder pain (RCRSP) has not been reported.

OBJECTIVES:

The aim of this study was to investigate the level of association between AHD measured by ultrasonography and pain-disability and shoulder range of movement (ROM), in patients suffering from chronic RCRSP. As a secondary objective, the determination of the intrarater reliability of AHD at both 0 and 60 degrees of shoulder elevation was carried out.

DESIGN:

This was a cross-sectional study.

METHOD:

A sample comprised of 97 patients with chronic RCSR symptoms was recruited from three different primary care centres. Acromio-humeral distance (AHD) measured by ultrasonography at 0 and 60 degrees of shoulder elevation, shoulder pain-function (SPADI) and range of movement (ROM) were taken.

RESULTS:

There was no correlation between AHD at 0° (-0,215), and at 60° (-0,148), with SPADI. No correlations were found with AHD and shoulder ROM at both 0 and 60°. Intrarater reliability was excellent for AHD at 0 and 60°.

CONCLUSIONS:

There was a small association between AHD and shoulder pain and function, as well as with shoulder ROM, in patients with chronic RCSR. Hence, clinicians should consider other possibilities rather than focusing their therapies only in increasing AHD when patients with chronic RCSR are treated.

24. ELBOW**PRP vs Surgery**

Arthroscopy. 2017 Apr 19. pii: S0749-8063(17)30176-7. doi: 10.1016/j.arthro.2017.02.009.

Arthroscopic Debridement Versus Platelet-Rich Plasma Injection: A Prospective, Randomized, Comparative Study of Chronic Lateral Epicondylitis With a Nearly 2-Year Follow-Up.

Merolla G¹, Dellabiancia F², Ricci A³, Mussoni MP⁴, Nucci S⁴, Zanolì G⁵, Paladini P³, Porcellini G³.

PURPOSE:

The purpose of this prospective, randomized study was to compare the efficacy of autologous platelet-rich plasma (PRP) injections and arthroscopic lateral release in treating chronic lateral epicondylitis (LE).

METHODS:

Patients who had a clinical diagnosis of LE confirmed by ultrasound (US) were included in this study. A total of 101 patients received arthroscopic release (n = 50) or US-guided PRP injections (n = 51). Outcomes were assessed using a visual analog scale for pain, the Patient-Rated Tennis Elbow Evaluation (PRTEE), and a calibrated hand dynamometer for grip strength.

RESULTS:

Both patient groups experienced significant improvement in all measures. Between-group comparisons showed a significantly higher value in the PRP group only for grip strength at week 8 (P = .0073); all other significant differences were in favor of arthroscopy: overall pain (P = .0021), night pain (P = .0013), and PRTEE score (P = .0013) at week 104 and grip strength at weeks 24, 52, and 104 (all P < .0001). Consumption of rescue pain medication was not significantly different between the groups.

CONCLUSIONS:

The present findings suggest that (1) PRP injections and arthroscopic extensor carpi radialis brevis release are both effective in the short and medium term; (2) PRP patients experienced a significant worsening of pain at 2 years; (3) arthroscopic release ensured better long-term outcomes in terms of pain relief and grip strength recovery; and (4) both procedures were safe and well accepted by patients. LEVEL OF EVIDENCE: Level II, prospective comparative study.

34. PATELLA**Changes in gait**

Arthritis Care Res (Hoboken). 2017 Apr 24. doi: 10.1002/acr.23261.

People with patellofemoral OA walk with different pelvic and hip kinematics compared to healthy aged-matched controls.

Crossley KM^{1,2}, Schache AG², Ozturk H², Lentzos J², Munanto M², Pandy MG².

Author information

Abstract

Objective, Patellofemoral joint (PFJ) osteoarthritis (OA) is common, yet little is known about how this condition influences lower-limb biomechanical function. This study compared pelvis and lower-limb kinematics in people with and without PFJOA.,

Methods, Sixty-nine participants (64% women, mean age 56±10 years) with anterior knee pain aggravated by PFJ loaded activities (stair ambulation, rising from sitting, squatting) and radiographic lateral PFJOA on skyline radiographs were compared with 18 controls (78% women, mean age 53±7 years) with no lower-limb pain or radiographic OA. Knee Injury and Osteoarthritis Outcome Score (KOOS) data were collected from PFJOA participants., Quantitative gait analyses were conducted during overground walking at a self-selected speed. Pelvis and lower-limb kinematics were calculated across the stance phase. Data were statistically analysed using the Analyses of Co-Variance (ANCOVA), with age and gender as co-variates ($p<0.05$).,

Results, Participants with PFJOA reported KOOS-pain of 65±15, KOOS-symptoms of 63±16, KOOS-activities of daily living of 73±13, KOOS-sport/recreation of 45±23 and KOOS-quality of life of 43±16. Participants with PFJOA walked with greater anterior pelvic tilt throughout stance as well as greater lateral pelvic tilt (i.e. pelvis lower on the contralateral side), greater hip adduction and lower hip extension during late stance. No differences in knee and ankle joint angles were observed between groups.,

Conclusions, People with PFJOA walk with altered pelvic and hip movement patterns compared with aged-matched controls. Restoring normal movement patterns during walking in people with PFJOA may be warranted to help alleviate symptoms., This article is protected by copyright. All rights reserved.

35. KNEE/TOTAL**Pain management**

Anesthesiology. 2017 May;126(5):923-937. doi: 10.1097/ALN.0000000000001607.

Pain Management Modalities after Total Knee Arthroplasty: A Network Meta-analysis of 170 Randomized Controlled Trials.

Terkawi AS¹, Mavridis D, Sessler DI, Nunemaker MS, Doais KS, Terkawi RS, Terkawi YS, Petropoulou M, Nemergut EC.

BACKGROUND:

Optimal analgesia for total knee arthroplasty remains challenging. Many modalities have been used, including peripheral nerve block, periarticular infiltration, and epidural analgesia. However, the relative efficacy of various modalities remains unknown. The authors aimed to quantify and rank order the efficacy of available analgesic modalities for various clinically important outcomes.

METHODS:

The authors searched multiple databases, each from inception until July 15, 2016. The authors used random-effects network meta-analysis. For measurements repeated over time, such as pain, the authors considered all time points to enhance reliability of the overall effect estimate. Outcomes considered included pain scores, opioid consumption, rehabilitation profile, quality of recovery, and complications. The authors defined the optimal modality as the one that best balanced pain scores, opioid consumption, and range of motion in the initial 72 postoperative hours.

RESULTS:

The authors identified 170 trials (12,530 patients) assessing 17 treatment modalities. Overall inconsistency and heterogeneity were acceptable. Based on the surface under the cumulative ranking curve, the best five for pain at rest were femoral/obturator, femoral/sciatic/obturator, lumbar plexus/sciatic, femoral/sciatic, and fascia iliaca compartment blocks. For reducing opioid consumption, the best five were femoral/sciatic/obturator, femoral/obturator, lumbar plexus/sciatic, lumbar plexus, and femoral/sciatic blocks. The best modality for range of motion was femoral/sciatic blocks. Femoral/sciatic and femoral/obturator blocks best met our criteria for optimal performance. Considering only high-quality studies, femoral/sciatic seemed best.

CONCLUSIONS:

Blocking multiple nerves was preferable to blocking any single nerve, periarticular infiltration, or epidural analgesia. The combination of femoral and sciatic nerve block appears to be the overall best approach. Rehabilitation parameters remain markedly understudied

Unicompartmental

Bone Joint J. 2017 Apr;99-B(4):475-482. doi: 10.1302/0301-620X.99B4.BJJ-2016-1061.R1.

Unsatisfactory outcomes following unicompartmental knee arthroplasty in patients with partial thickness cartilage loss: a medium-term follow-up.

Hamilton TW¹, Pandit HG², Inabathula A¹, Ostlere SJ³, Jenkins C⁴, Mellon SJ¹, Dodd CA⁴, Murray DW⁵.

AIMS:

While medial unicompartmental knee arthroplasty (UKA) is indicated for patients with full-thickness cartilage loss, it is occasionally used to treat those with partial-thickness loss. The aim of this study was to investigate the five-year outcomes in a consecutive series of UKAs used in patients with partial thickness cartilage loss in the medial compartment of the knee.

PATIENTS AND METHODS:

Between 2002 and 2014, 94 consecutive UKAs were undertaken in 90 patients with partial thickness cartilage loss and followed up independently for a mean of six years (1 to 13). These patients had partial thickness cartilage loss either on both femur and tibia (13 knees), or on either the femur or the tibia, with full thickness loss on the other surface of the joint (18 and 63 knees respectively). Using propensity score analysis, these patients were matched 1:2 based on age, gender and pre-operative Oxford Knee Score (OKS) with knees with full thickness loss on both the femur and tibia. The functional outcomes, implant survival and incidence of re-operations were assessed at one, two and five years post-operatively. A subgroup of 36 knees in 36 patients with partial thickness cartilage loss, who had pre-operative MRI scans, was assessed to identify whether there were any factors identified on MRI that predicted the outcome.

RESULTS:

Knees with partial thickness cartilage loss had significantly worse functional outcomes at one, two and five years post-operatively compared with those with full thickness loss. A quarter of knees with partial thickness loss had a fair or poor result and a fifth failed to achieve a clinically significant improvement in OKS from a baseline of four points or more; double that seen in knees with full thickness loss. Whilst there was no difference in implant survival between the groups, the rate of re-operation in knees with partial thickness loss was three times higher. Most of the re-operations (three-quarters), were arthroscopies for persistent pain. Compared with those achieving good or excellent outcomes, patients with partial thickness cartilage loss who achieved fair or poor outcomes were younger and had worse pre-operative functional scores. However, there were no other differences in the baseline demographics. MRI findings of full thickness cartilage loss, subchondral oedema, synovitis or effusion did not provide additional prognostic information.

CONCLUSION:

Medial UKA should be reserved for patients with full thickness cartilage loss on both the femur and tibia. Whilst some patients with partial thickness loss achieve a good result we cannot currently identify which these will be and in this situation MRI is unhelpful and misleading. Cite this article: *Bone Joint J* 2017;99-B:475-82.

37. OSTEOARTHRITIS/KNEE

Importance of exercise

Quadriceps muscle weakness is related to increased risk of radiographic knee OA but not its progression in both women and men: The Matsudai Knee Osteoarthritis Survey

Knee Surgery, Sports Traumatology, Arthroscopy

Takagi S, et al.

This investigation was directed to assess the causal link between quadriceps muscle strength and radiographic knee osteoarthritis (OA). It was highlighted in findings that incidence of radiographic knee OA but not its progression was associated with quadriceps muscle weakness, in both women and men. Therefore, researchers recommended maintenance of high quadriceps muscle strength in both sexes for achieving an effective prevention of incident radiographic knee OA.

PRP

Exp Gerontol. 2017 Apr 19. pii: S0531-5565(17)30094-3. doi: 10.1016/j.exger.2017.04.004.

The influence of platelet rich plasma on synovial fluid volumes, protein concentrations, and severity of pain in patients with knee osteoarthritis.

Chen CPC¹, Cheng CH², Hsu CC³, Lin HC¹, Tsai YR¹, Chen JL⁴.

Author information

Abstract

Knee pain is commonly seen in orthopedic and rehabilitation outpatient clinical settings. Patients with knee osteoarthritis (OA) are often complicated with joint soreness, swelling, weakness, and pain. These complaints are often caused by the excessive amount of synovial fluid (SF) accumulated in the bursae around the knee joint.

This study was aimed to evaluate the effectiveness of platelet rich plasma (PRP) in treating patients with minor to moderate knee osteoarthritis (OA) combined with supra-patellar bursitis using a proteomic approach and clinical evaluation tool. In this study, 24 elderly patients with minor to moderate knee OA combined with supra-patellar bursitis were recruited.

Musculoskeletal ultrasound was used for accurate needle placement for the aspiration of SF followed by subsequent PRP injections.

Three monthly PRP injections were performed to the affected knees for a total of 3 months.

Approximately after the 2nd PRP injection, significant decreases in SF total protein concentrations, volumes, and Lequesne index values were observed. SF proteins associated with chelation and anti-aging physiological functions such as matrilin, transthyretin, and complement 5 increased at least 2-fold in concentrations. Proteins associated with inflammation, such as apolipoprotein A-I, haptoglobin, immunoglobulin kappa chain, transferrin, and matrix metalloproteinase decreased at least 2-fold in concentrations.

Therefore, at least two monthly PRP injections may be beneficial for treating patients with minor to moderate knee OA combined with supra-patellar bursitis

42. PLANTAR SURFACE

Treatment

Extracorporeal shockwave therapy versus kinesiology taping in the management of plantar fasciitis: A randomized clinical trial

Archives of Rheumatology

Ordahan B, et al.

A randomized clinical trial was conducted to compare the adequacy of extracorporeal shockwave therapy (ESWT) and kinesiology taping in the treatment of plantar fasciitis. The data indicated that both extracorporeal shockwave therapy and KT treatments improved pain levels and function and quality of life in individuals with plantar fasciitis. In addition, either method was superior in treating plantar fasciitis.

Methods

- Clinicians recruited 80 patients diagnosed with plantar fasciitis.
- They randomized the patients into two groups as ESWT (9 males, 28 females; mean age 47.8 ± 12.4 years; range 40 to 55 years) and kinesiology taping (KT, 7 males, 26 females; mean age 47.7 ± 9.8 years; range 40 to 55 years) groups.
- In this study, groups were similar regarding age, sex, and body mass index (all $p > 0.05$).
- Three patients in ESWT group and seven patients in KT group were lost to follow-up.
- They applied ESWT once a week for five weeks, while KT was applied every five days for five weeks.
- They assessed patients' pain and functional status with visual analog scale, heel tenderness index, and foot and ankle outcome score before and after treatment.

Results

- No statistically significant differences were observed between the two groups in their visual analog scale, heel tenderness index, and foot and ankle outcome scores.
- As per the data, five weeks later, both groups displayed significant improvement in all parameters ($p < 0.05$), but there were no significant differences between the groups in the visual analog scale, heel tenderness index, and foot and ankle outcome score scores.

45 A. MANUAL THERAPY LUMBAR & GENERAL**Impact of manipulation**

JAMA. 2017 Apr 11;317(14):1451-1460. doi: 10.1001/jama.2017.3086.

Association of Spinal Manipulative Therapy With Clinical Benefit and Harm for Acute Low Back Pain: Systematic Review and Meta-analysis.

Paige NM1, Miake-Lye IM2, Booth MS3, Beroes JM1, Mardian AS4, Dougherty P5, Branson R6, Tang B7, Morton SC8, Shekelle PG9.

IMPORTANCE: Acute low back pain is common and spinal manipulative therapy (SMT) is a treatment option. Randomized clinical trials (RCTs) and meta-analyses have reported different conclusions about the effectiveness of SMT.

OBJECTIVE: To systematically review studies of the effectiveness and harms of SMT for acute (≤ 6 weeks) low back pain.

DATA SOURCES: Search of MEDLINE, Cochrane Database of Systematic Reviews, EMBASE, and Current Nursing and Allied Health Literature from January 1, 2011, through February 6, 2017, as well as identified systematic reviews and RCTs, for RCTs of adults with low back pain treated in ambulatory settings with SMT compared with sham or alternative treatments, and that measured pain or function outcomes for up to 6 weeks. Observational studies were included to assess harms.

DATA EXTRACTION AND SYNTHESIS: Data extraction was done in duplicate. Study quality was assessed using the Cochrane Back and Neck (CBN) Risk of Bias tool. This tool has 11 items in the following domains: randomization, concealment, baseline differences, blinding (patient), blinding (care provider [care provider is a specific quality metric used by the CBN Risk of Bias tool]), blinding (outcome), co-interventions, compliance, dropouts, timing, and intention to treat. Prior research has shown the CBN Risk of Bias tool identifies studies at an increased risk of bias using a threshold of 5 or 6 as a summary score. The evidence was assessed using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) criteria.

MAIN OUTCOMES AND MEASURES: Pain (measured by either the 100-mm visual analog scale, 11-point numeric rating scale, or other numeric pain scale), function (measured by the 24-point Roland Morris Disability Questionnaire or Oswestry Disability Index [range, 0-100]), or any harms measured within 6 weeks.

FINDINGS:

Of 26 eligible RCTs identified, 15 RCTs (1711 patients) provided moderate-quality evidence that SMT has a statistically significant association with improvements in pain (pooled mean improvement in the 100-mm visual analog pain scale, -9.95 [95% CI, -15.6 to -4.3]). Twelve RCTs (1381 patients) produced moderate-quality evidence that SMT has a statistically significant association with improvements in function (pooled mean effect size, -0.39 [95% CI, -0.71 to -0.07]). Heterogeneity was not explained by type of clinician performing SMT, type of manipulation, study quality, or whether SMT was given alone or as part of a package of therapies. No RCT reported any serious adverse event. Minor transient adverse events such as increased pain, muscle stiffness, and headache were reported 50% to 67% of the time in large case series of patients treated with SMT.

CONCLUSIONS AND RELEVANCE:

Among patients with acute low back pain, spinal manipulative therapy was associated with modest improvements in pain and function at up to 6 weeks, with transient minor musculoskeletal harms. However, heterogeneity in study results was large.

Selecting positions for manip.

J Manipulative Physiol Ther. 2017 Mar - Apr;40(3):147-155. doi: 10.1016/j.jmpt.2016.10.014. Epub 2017 Feb 10.

Procedure Selection and Patient Positioning Influence Spine Kinematics During High-Velocity, Low-Amplitude Spinal Manipulation Applied to the Low Back.

Bell S¹, D'Angelo K¹, Kawchuk GN², Triano JJ¹, Howarth SJ³.

OBJECTIVES:

This investigation compared indirect 3-dimensional angular kinematics (position, velocity, and acceleration) of the lumbar spine for 2 different high-velocity, low-amplitude (HVLA) spinal manipulation procedures (lumbar spinous pull or push), and altered initial patient lower limb posture.

METHODS:

Twenty-four participants underwent 6 HVLA procedures directed toward the presumed L4 vertebra, reflecting each combination of 2 variants of a spinal manipulation application technique (spinous pull and push) and 3 initial hip flexion angles (0°, 45°, and 90°) applied using a right lateral recumbent patient position. All contact forces and moments between the patient and the external environment, as well as 3-dimensional kinematics of the patient's pelvis and thorax, were recorded. Lumbar spine angular positions, velocities, and accelerations were analyzed within the preload and impulse stages of each HVLA trial.

RESULTS:

Lumbar spine left axial rotation was greater for the pull HVLA. The pull HVLA also generated a greater maximum (leftward) and lower minimum (rightward) axial rotation velocity and deceleration and greater leftward and rightward lateral bend velocities, acceleration, and deceleration components. Not flexing the hip produced the greatest amount of extension, as well as the lowest axial rotation and maximum axial rotation acceleration during the impulse.

CONCLUSIONS:

This investigation provides basic kinematic information for clinicians to understand the similarities and differences between 2 HVLA side-lying manipulations in the lumbar spine. Use of these findings and novel technology can drive future research initiatives that can both affect clinical decision making and influence teaching environments surrounding spinal manipulative therapy skill acquisition.

Biochemical changes

Musculoskelet Sci Pract. 2017 Apr 5;29:120-131. doi: 10.1016/j.msksp.2017.04.004

Changes in biochemical markers following spinal manipulation-a systematic review and meta-analysis.

Kovanur-Sampath K¹, Mani R², Cotter J³, Gisselman AS², Tumilty S².

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The aim of this meta-analysis was to determine the effectiveness of spinal manipulation in influencing various biochemical markers in healthy and or symptomatic population.

Electronic databases (n = 10) were searched (from inception till September 2016) and eight trials (325 participants) that met the inclusion criteria were included in the meta-analysis.

Two authors independently extracted and assessed the risk of bias in included studies. Standardised mean differences for outcome measures were used to calculate effect sizes. The Grading of Recommendations, Assessment, Development and Evaluation (GRADE) tool was used for assessing the quality of the body of evidence for each outcome of interest. There was moderate quality evidence that spinal manipulation influenced biochemical markers. There was moderate quality evidence of significant difference that spinal manipulation is better (SMD -0.46, 95% CI - 0.93 to 0) than control in eliciting changes in cortisol levels immediately after intervention. There was also a low quality evidence that spinal manipulation is better than control at post-intervention in increasing substance-P (SMD -0.48,95%CI-0.87 to -0.1), neurotensin (SMD -1.8,95%CI-2.56 to -1.04) and oxytocin levels (SMD -2.61,95%CI-3.5to-1.72). However, low quality evidence indicated that spinal manipulation did not influence epinephrine (SMD 0.1,95%CI- 0.56to0.75) or nor-epinephrine levels (SMD -0.06,95%CI-0.71to0.6).

The current review found that spinal manipulation can increase substance-p, neurotensin, oxytocin and interleukin levels and may influence cortisol levels post-intervention. However, future trials targeting symptomatic populations are required to understand the clinical importance of such changes

45 B. MANUAL THERAPY CERVICAL

Maitland for C spine

J Phys Ther Sci. 2017 Mar;29(3):531-535. doi: 10.1589/jpts.29.531. Epub 2017 Mar 22.

Effect of maitland mobilization in cervical and thoracic spine and therapeutic exercise on functional impairment in individuals with chronic neck pain.

Lee KS¹, Lee JH².

[Purpose] This study evaluated joint mobilization and therapeutic exercise applied to the cervical spine and upper thoracic spine for functional impairment caused by chronic neck pain.

[Subjects and Methods] Eighteen study subjects were randomly assigned to two groups of nine people each. Therapeutic exercise only was applied to the cervical and upper thoracic spine for Group I, while both therapeutic exercise and joint mobilization were applied to Group II. The visual analog scale, neck disability index, active cervical range of motion, static balance capacity, and muscle tone were assessed with a pre-test. The intervention was carried out for 60 minutes a day, three times a week, for two weeks for each group, followed by a post-test using the same protocol as the pre-test.

[Results] The visual analog scale, neck disability index, and active cervical range of motion improved significantly in both groups. Group II improved significantly more on right lateral flexion and rightward rotation. Muscle tone improved significantly in the upper trapezius in both groups.

[Conclusion] The joint mobilization and therapeutic exercise for functional impairments caused by chronic neck pain had a significant effect on several types of functional impairment.

CT manip for TMJ

J Man Manip Ther. 2016 May;24(2):90-7. doi: 10.1179/2042618614Y.0000000080.

Cervicothoracic junction thrust manipulation in the multimodal management of a patient with temporomandibular disorder.

Jayaseelan DJ¹, Tow NS².

Temporomandibular disorder (TMD) is a common condition that can be difficult to manage in physical therapy.

A number of interventions, such as manual therapy, therapeutic exercise, and patient education have typically been used in some combination. However, the evidence regarding thrust manipulation of not only the local but also adjacent segments is sparse. Specifically, the use of cervicothoracic (CT) junction thrust manipulation has not previously been described in the management of individuals with TMD. In this case report, CT junction thrust manipulation, in addition to locally directed manual therapy, exercise, and postural education, was associated with immediate improvements in neck and jaw symptoms and function in a complex patient with TMD. The patient was seen for seven visits over the course of 2 months and demonstrated clinically significant changes in the neck disability index (NDI), the numeric rating of pain scale (NPRS), and the global rating of change (GROC) scale.

The purpose of this report is to describe the successful physical therapy management of a patient with TMD utilizing manual therapy, including CT junction thrust manipulation, education, and exercise

Lateral glide mobilizations

Pain Med. 2017 Mar 13. doi: 10.1093/pm/pnx011.

Cervical Lateral Glide Neural Mobilization Is Effective in Treating Cervicobrachial Pain: A Randomized Waiting List Controlled Clinical Trial.

Rodríguez-Sanz D¹, Calvo-Lobo C², Unda-Solano F¹, Sanz-Corbalán I³, Romero-Morales C¹, López-López D⁴.

BACKGROUND.:

Cervicobrachial pain (CP) is a high-incidence and prevalent condition. Cervical lateral glide (CLG) is a firstline treatment of CP. There is a current lack of enough high-quality randomized controlled double-blind clinical trials that measure the effectiveness of neural tissue mobilization techniques such as the CLG and its specific effect over CP.

OBJECTIVES.:

The aim of the present study was to assess the effect of CLG neural mobilization in treating subjects who suffer from CP, compared with the complete absence of treatment.

STUDY DESIGN.:

This investigation was a single-center, blinded, parallel randomized controlled clinical trial (RCT).

SETTING.:

One hundred forty-seven individuals were screened in a medical center from July to November 2015. Fifty-eight participants were diagnosed with CP.

METHODS.:

Participants were recruited and randomly assigned into two groups of 29 subjects. The intervention group received CLG treatment, and the control group (CG) was assigned to a six-week waiting list to receive treatment. Randomization was carried out by concealed computer software randomized printed cards. The primary outcome was pain intensity, reported through the Numeric Rating Scale for Pain (NRSP). Secondary outcomes were physical function involving the affected upper limb using the Quick DASH scale and ipsilateral cervical rotation (ICR) using a CROM device. Assessments were made at baseline and one hour after treatment.

RESULTS.:

The CLG group NRSP mean value was significantly ($P < 0.0001$) superior to those obtained by the CG. Subjects treated with CLG reported an average NRSP decrease of 2.16 points (35%). CROM device and Quick DASH outcome values also reported significant ($P < 0.0001$) improvements only in the CLG group. Cohen's d showed a very large effect of the CLG intervention at subject discharge.

LIMITATIONS.:

Due to the lack of dipper subgroup analysis and additional reproductions of the applied protocol, the authors considered the generalization of the study results to be impossible.

CONCLUSIONS.:

CLG is superior to the absence of treatment in reducing pain and increasing the affected upper limb function of subjects who suffer from CP. CLG may be considered an effective treatment in specific cases of CP.

45 D. MANUAL THERAPY EXTREMITIES**CTS MT vs Surgery**

Eur J Pain. 2017 Mar 14. doi: 10.1002/ejp.1026.

Effectiveness of manual therapy versus surgery in pain processing due to carpal tunnel syndrome: A randomized clinical trial.

Fernández-de-Las-Peñas C¹, Cleland J^{2,3,4}, Palacios-Ceña M¹, Fuensalida-Novo S¹, Alonso-Blanco C¹, Pareja JA⁵, Alburquerque-Sendín F⁶.

BACKGROUND:

People with carpal tunnel syndrome (CTS) exhibit widespread pressure pain and thermal pain hypersensitivity as a manifestation of central sensitization. The aim of our study was to compare the effectiveness of manual therapy versus surgery for improving pain and nociceptive gain processing in people with CTS.

METHODS:

The trial was conducted at a local regional Hospital in Madrid, Spain from August 2014 to February 2015. In this randomized parallel-group, blinded, clinical trial, 100 women with CTS were randomly allocated to either manual therapy (n = 50), who received three sessions (once/week) of manual therapies including desensitization manoeuvres of the central nervous system, or surgical intervention (n = 50) group. Outcomes including pressure pain thresholds (PPT), thermal pain thresholds (HPT or CPT), and pain intensity which were assessed at baseline, and 3, 6, 9 and 12 months after the intervention by an assessor unaware of group assignment. Analysis was by intention to treat with mixed ANCOVAs adjusted for baseline scores.

RESULTS:

At 12 months, 95 women completed the follow-up. Patients receiving manual therapy exhibited higher increases in PPT over the carpal tunnel at 3, 6 and 9 months (all, $p < 0.01$) and higher decrease of pain intensity at 3 month follow-up ($p < 0.001$) than those receiving surgery. No significant differences were observed between groups for the remaining outcomes.

CONCLUSIONS:

Manual therapy and surgery have similar effects on decreasing widespread pressure pain sensitivity and pain intensity in women with CTS. Neither manual therapy nor surgery resulted in changes in thermal pain sensitivity.

SIGNIFICANCE:

The current study found that manual therapy and surgery exhibited similar effects on decreasing widespread pressure pain sensitivity and pain intensity in women with carpal tunnel syndrome at medium- and long-term follow-ups investigating changes in nociceptive gain processing after treatment in carpal tunnel syndrome.

CTS

J Manipulative Physiol Ther. 2017 Apr 8. pii: S0161-4754(17)30043-X. doi: 10.1016/j.jmpt.2017.02.004.

Efficacy of Manual Therapy Including Neurodynamic Techniques for the Treatment of Carpal Tunnel Syndrome: A Randomized Controlled Trial.

Wolny T¹, Saulicz E¹, Linek P², Shacklock M³, Myśliwiec A¹.

OBJECTIVE:

The purpose of this randomized trial was to compare the efficacy of manual therapy, including the use of neurodynamic techniques, with electrophysical modalities on patients with mild and moderate carpal tunnel syndrome (CTS).

METHODS:

The study included 140 CTS patients who were randomly assigned to the manual therapy (MT) group, which included the use of neurodynamic techniques, functional massage, and carpal bone mobilizations techniques, or to the electrophysical modalities (EM) group, which included laser and ultrasound therapy. Nerve conduction, pain severity, symptom severity, and functional status measured by the Boston Carpal Tunnel Questionnaire were assessed before and after treatment. Therapy was conducted twice weekly and both groups received 20 therapy sessions.

RESULTS:

A baseline assessment revealed group differences in sensory conduction of the median nerve ($P < .01$) but not in motor conduction ($P = .82$). Four weeks after the last treatment procedure, nerve conduction was examined again. In the MT group, median nerve sensory conduction velocity increased by 34% and motor conduction velocity by 6% (in both cases, $P < .01$). There was no change in median nerve sensory and motor conduction velocities in the EM. Distal motor latency was decreased ($P < .01$) in both groups. A baseline assessment revealed no group differences in pain severity, symptom severity, or functional status. Immediately after therapy, analysis of variance revealed group differences in pain severity ($P < .01$), with a reduction in pain in both groups (MT: 290%, $P < .01$; EM: 47%, $P < .01$). There were group differences in symptom severity ($P < .01$) and function ($P < .01$) on the Boston Carpal Tunnel Questionnaire. Both groups had an improvement in functional status (MT: 47%, $P < .01$; EM: 9%, $P < .01$) and a reduction in subjective CTS symptoms (MT: 67%, $P < .01$; EM: 15%, $P < .01$).

CONCLUSION:

Both therapies had a positive effect on nerve conduction, pain reduction, functional status, and subjective symptoms in individuals with CTS. However, the results regarding pain reduction, subjective symptoms, and functional status were better in the MT group

48 A. STM**Rate of pressure**

Pain Pract. 2017 Apr 25. doi: 10.1111/papr.12597.

The Relationship Between Rate of Algometer Application and Pain Pressure Threshold in the Assessment of Myofascial Trigger Point Sensitivity.

Linde LD¹, Kumbhare DA², Joshi M³, Srbely JZ⁴.

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BACKGROUND:

Pressure algometry is a commonly employed technique in the assessment of both regional and widespread musculoskeletal pain. Despite its acceptance amongst clinicians and scientists, the relationship between rate of pressure application (RoA) and pain pressure threshold (PPT) remains poorly understood. We set out to test the hypothesis that a strong, positive, linear relationship exists between the RoA and the PPT within the infraspinatus of young healthy subjects.

METHODS:

Thirty-three (n=33) participants were randomly recruited from the local university community. PPT measures were recorded from a clinically identified myofascial trigger point (MTrP) within the right infraspinatus muscle during pressure algometry. A total of two PPT measures were recorded using each of three different RoA including low (15N/s), medium (35N/s), and high (55N/s). Three baseline trials were also conducted at 30N/s. The Pearson's correlation coefficient (R) between RoA and PPT was calculated for each subject and averaged across participants.

RESULTS:

The mean correlation between subjects was 0.77(0.19) and the average slope of the linear regression was 0.13(0.09).

CONCLUSION:

Our results demonstrate that there is a strong, linear relationship between the RoA and PPT when using the pressure algometry technique. The low slope between RoA and PPT suggests clinicians can rely on PPT assessments despite small RoA fluctuations. Future research should explore this relationship further in a clinical population and in other muscles affected by chronic myofascial pain. Advancing cost effective, reliable, and clinically feasible tools such as algometry is important to enhancing the diagnosis and management of chronic myofascial pain. This article is protected by copyright. All rights reserved.

Friction massage in popliteal fossa

J Phys Ther Sci. 2017 Mar;29(3):511-514. doi: 10.1589/jpts.29.511. Epub 2017 Mar 22.

Effects of friction massage of the popliteal fossa on blood flow velocity of the popliteal vein.

Iwamoto K¹, Mizukami M¹, Asakawa Y¹, Endo Y¹, Takata Y², Yoshikawa K³, Yoshio M⁴.

Author information

Abstract

[Purpose] Friction massage (friction) of the popliteal fossa is provided for the purpose of relieving pain related to circulatory disorders by improving venous flow in the lower legs. The purpose of this study is to verify the effects of enhancing the venous flow based on measuring the blood flow velocity of the popliteal vein before and after providing friction to the patients.

[Subjects and Methods] Fifteen healthy male university students participated in the study. The Doppler ultrasonography (DU) was used to measure the blood flow velocity of the popliteal vein, in order to verify the effects of enhancing the venous flow by comparing the measured values before and after a friction massage.

[Results] The result of comparing the blood flow velocity before and after providing friction showed that there was a significant increase after friction.

[Conclusion] This study proved that friction to the popliteal fossa is effectively enhances venous flow by increasing the blood flow velocity in the popliteal vein.

Self-acupressure

Arthritis Care Res (Hoboken). 2017 Apr 24. doi: 10.1002/acr.23262.

Self-Acupressure for Older Adults with Symptomatic Knee Osteoarthritis: A Randomized Controlled Trial.

Li LW¹, Harris RE², Tsodikov A³, Struble L⁴, Murphy ScD SL⁵.

OBJECTIVES:

This double-blind RCT aimed to test the efficacy of self-administered acupressure for pain and physical function improvement for older adults with knee osteoarthritis (KOA).

METHODS:

Community-living adults with symptomatic KOA (N=150; mean age=73) participated and were randomized to verum acupressure, sham acupressure, or usual care. Verum and sham, but not usual care, participants were taught to self-apply acupressure once daily, five days/week for eight weeks. Assessments were collected during center visits at baseline, four and eight weeks. The numeric rating scale (NRS) for pain was administered during weekly phone calls to check on the participants. Outcomes included the WOMAC pain subscale (primary), the NRS and physical function measures (secondary). Linear mixed regression was conducted to test between group differences in mean changes from baseline for the outcomes at eight weeks.

RESULTS:

Compared with usual care, both verum and sham participants experienced significant improvements in WOMAC pain (mean difference: -1.27 units; 95% CI: -1.95 to -.58, and -1.24; 95% CI: -1.92 to -.55, respectively), NRS pain (-.74; 95% CI: -1.24 to -.24, and -.51; 95% CI: -1.01 to -.01, respectively) and WOMAC function (-4.83; 95% CI: -6.99 to -2.67, and -4.21; 95% CI: -6.37 to -2.04, respectively) at 8 weeks. There were no significant differences between verum and sham acupressure groups in any outcomes.

CONCLUSION:

Self-administered acupressure is superior to usual care in pain and physical function improvement for older people with KOA. The reason for the benefits is unclear and placebo effects may have played a role. This article is protected by copyright. All rights reserved.

MFR and LBP

Spine (Phila Pa 1976). 2017 May 1;42(9):627-634. doi: 10.1097/BRS.0000000000001897.

Effects of Myofascial Release in Nonspecific Chronic Low Back Pain: A Randomized Clinical Trial.

Arguisuelas MD¹, Lisón JF, Sánchez-Zuriaga D, Martínez-Hurtado I, Doménech-Fernández J.
Author information

Abstract

STUDY DESIGN:

Double-blind, randomized parallel sham-controlled trial with concealed allocation and intention-to treat analysis.

OBJECTIVE:

To investigate the effects of an isolate myofascial release (MFR) protocol on pain, disability, and fear-avoidance beliefs in patients with chronic low back pain (CLBP).

SUMMARY OF BACKGROUND DATA:

MFR is a form of manual medicine widely used by physiotherapists in the management of different musculoskeletal pathologies. Up to this moment, no previous studies have reported the effects of an isolated MFR treatment in patients with CLBP.

METHODS:

Fifty-four participants, with nonspecific CLBP, were randomized to MFR group (n=27) receiving four sessions of myofascial treatment, each lasting 40 minutes, and to control group (n=27) receiving a sham MFR. Variables studied were pain measured by means Short Form McGill Pain Questionnaire (SF-MPQ) and visual analog scale (VAS), disability measured with Roland Morris Questionnaire, and fear-avoidance beliefs measured with Fear-Avoidance Beliefs Questionnaire.

RESULTS:

Subjects receiving MFR displayed significant improvements in pain (SF-MPQ) (mean difference -7.8; 95% confidence interval [CI]: -14.5 to -1.1, P=0.023) and sensory SF-MPQ subscale (mean difference -6.1; 95% CI: -10.8 to -1.5, P=0.011) compared to the sham group, but no differences were found in VAS between groups. Disability and the Fear-Avoidance Beliefs Questionnaire score also displayed a significant decrease in the MFR group (P<0.05) as compared to sham MFR.

CONCLUSION:

MFR therapy produced a significant improvement in both pain and disability. Because the minimal clinically important differences in pain and disability are, however, included in the 95% CI, we cannot know whether this improvement is clinically relevant.

Pitchers shoulder STM

Sports Health. 2017 Apr 1:1941738117702835. doi: 10.1177/1941738117702835.

Effectiveness of Manual Therapy and Stretching for Baseball Players With Shoulder Range of Motion Deficits.

Bailey LB¹, Thigpen CA², Hawkins RJ³, Beattie PF⁴, Shanley E².

BACKGROUND:

Baseball players displaying deficits in shoulder range of motion (ROM) are at increased risk of arm injury. Currently, there is a lack of consensus regarding the best available treatment options to restore shoulder ROM.

HYPOTHESIS:

Instrumented manual therapy with self-stretching will result in clinically significant deficit reductions when compared with self-stretching alone.

STUDY DESIGN:

Controlled laboratory study.

METHODS:

Shoulder ROM and humeral torsion were assessed in 60 active baseball players (mean age, 19 ± 2 years) with ROM deficits (nondominant - dominant, ≥15°). Athletes were randomly assigned to receive a single treatment of instrumented manual therapy plus self-stretching (n = 30) or self-stretching only (n = 30). Deficits in internal rotation, horizontal adduction, and total arc of motion were compared between groups immediately before and after a single treatment session.

Treatment effectiveness was determined by mean comparison data, and a number-needed-to-treat (NNT) analysis was used for assessing the presence of ROM risk factors.

RESULTS:

Prior to intervention, players displayed significant (P < 0.001) dominant-sided deficits in internal rotation (-26°), total arc of motion (-18°), and horizontal adduction (-17°). After the intervention, both groups displayed significant improvements in ROM, with the instrumented manual therapy plus self-stretching group displaying greater increases in internal rotation (+5°, P = 0.010), total arc of motion (+6°, P = 0.010), and horizontal adduction (+7°, P = 0.004) compared with self-stretching alone. For horizontal adduction deficits, the added use of instrumented manual therapy with self-stretching decreased the NNT to 2.2 (95% CI, 2.1-2.4; P = 0.010).

CONCLUSION:

Instrumented manual therapy with self-stretching significantly reduces ROM risk factors in baseball players with motion deficits when compared with stretching alone.

CLINICAL RELEVANCE:

The added benefits of manual therapy may help to reduce ROM deficits in clinical scenarios where stretching alone is ineffective.

48 B. TRIGGER POINTS NEEDLING/ACUPUNCTURE**DN helps**

Am J Phys Med Rehabil. 2017 Mar 14. doi: 10.1097/PHM.0000000000000733.

Effectiveness of Different Deep Dry Needling Dosages in the Treatment of Patients With Cervical Myofascial Pain: A Pilot RCT.

Fernández-Carnero J¹, Gilarranz-de-Frutos L, León-Hernández JV, Pecos-Martin D, Alguacil-Diego I, Gallego-Izquierdo T, Martín-Pintado-Zugasti A.

OBJECTIVE:

To assess the effectiveness of different dosages of local twitch responses (LTRs) elicited by deep dry needling (DDN) in relation to pain intensity, pressure pain threshold (PPT), cervical range of movement (CROM), and disability degree in cervical myofascial pain patients.

DESIGN:

A randomized, double-blind clinical trial.

PARTICIPANTS:

Eighty-four patients (21 males, 63 females; 27.18 ± 10.91 yrs) with cervical pain.

INTERVENTIONS:

DDN in active myofascial trigger points (MTrPs) in the upper trapezius. Patients were randomly divided into four groups: (a) no LTRs elicited, (b) four LTRs elicited, (c) six LTRs elicited, and (d) needling until no more LTRs were elicited.

OUTCOME MEASURES:

Pain intensity, PPT, CROM, and disability degree were assessed before treatment, post-immediate, 48 hrs, 72 hrs, and 1 wk after treatment.

RESULTS:

Significant differences were found in the time factor for all the variables ($P < 0.005$), but no significant changes were found in the group-time interaction ($P > 0.05$).

CONCLUSIONS:

DDN in the upper trapezius MTrP improved pain at a 1-wk follow-up, but improvements were not significantly different among DDN dosages. A higher number of patients with neck pain improvements superior to the moderate clinically important differences were observed when eliciting 6 LTRs and LTRs until exhaustion compared with not eliciting LTRs.

Acupuncture and chronic pain

Pain. 2017 May;158(5):784-793. doi: 10.1097/j.pain.0000000000000747.

The persistence of the effects of acupuncture after a course of treatment: a meta-analysis of patients with chronic pain.

MacPherson H¹, Vertosick EA, Foster NE, Lewith G, Linde K, Sherman KJ, Witt CM, Vickers AJ.

There is uncertainty regarding how long the effects of acupuncture treatment persist after a course of treatment.

We aimed to determine the trajectory of pain scores over time after acupuncture, using a large individual patient data set from high-quality randomized trials of acupuncture for chronic pain. The available individual patient data set included 29 trials and 17,922 patients. The chronic pain conditions included musculoskeletal pain (low back, neck, and shoulder), osteoarthritis of the knee, and headache/migraine. We used meta-analytic techniques to determine the trajectory of posttreatment pain scores. Data on longer term follow-up were available for 20 trials, including 6376 patients. In trials comparing acupuncture to no acupuncture control (wait-list, usual care, etc), effect sizes diminished by a nonsignificant 0.011 SD per 3 months (95% confidence interval: -0.014 to 0.037, $P = 0.4$) after treatment ended. The central estimate suggests that approximately 90% of the benefit of acupuncture relative to controls would be sustained at 12 months. For trials comparing acupuncture to sham, we observed a reduction in effect size of 0.025 SD per 3 months (95% confidence interval: 0.000-0.050, $P = 0.050$), suggesting approximately a 50% diminution at 12 months. The effects of a course of acupuncture treatment for patients with chronic pain do not seem to decrease importantly over 12 months.

Patients can generally be reassured that treatment effects persist. Studies of the cost-effectiveness of acupuncture should take our findings into account when considering the time horizon of acupuncture effects. Further research should measure longer term outcomes of acupuncture.

51. CFS/BET**Role of fatigue in motion**

BMC Musculoskelet Disord. 2017 Apr 19;18(1):161. doi: 10.1186/s12891-017-1523-3.

The influence of fatigue and chronic low back pain on muscle recruitment patterns following an unexpected external perturbation.

Jubany J^{1,2}, Danneels L³, Angulo-Barroso R^{4,5}.

BACKGROUND:

Chronic low back pain (CLBP) has been associated with altered trunk muscle responses as well as increased muscle fatigability. CLBP patients and fatigued healthy subjects could experience similar neuromuscular strategies to attempt to protect the spine. The current study examined muscle activation differences between healthy and CLBP subjects following a perturbation. In addition, the possible role of muscle fatigue was evaluated by investigating the healthy control subjects in a non-fatigued and a fatigued condition. Both experiments were combined to evaluate possible similar strategies between CLBP and fatigued samples.

METHODS:

Cross-sectional study where 24 CLBP subjects and 26 healthy subjects were evaluated. Both groups (CLBP vs. healthy) and both conditions (non-fatigued and a fatigued condition) were evaluated while a weight was suddenly dropped on a held tray. Erector spinae, multifidus, obliques and biceps brachii were recorded using surface electromyography. Variables describing the bursts timing and variables describing the amount of muscle activity (number of bursts and amplitude increase) post impact were studied. The analysis between groups and conditions was carried out using ANOVAs with repeated measurements for the muscle factor.

RESULTS:

CLBP subjects reacted similarly to healthy subjects regarding muscle activity post impact. However, the CLBP group showed temporal characteristics of muscle activity that were in between the fatigued and non-fatigued healthy group. Clear differences in muscle activity were displayed for healthy subjects. Fatigued healthy subjects presented more reduced activity after impact (upper limb and trunk muscles) than non-fatigued healthy subjects and different temporal characteristic in the same way than CLBP patients. This same temporal characteristic with CLBP and healthy fatigued people was a delay of the first burst of muscle activity after impact.

CONCLUSION:

Though similar muscle pattern existed between CLBP and healthy people, CLBP temporal characteristics of muscle activity showed a pattern in between healthy people and fatigued healthy people. While the temporal muscle pattern dysfunction used by CLBP subjects could be related to maladaptive patterns, temporal and muscle activity characteristics used by healthy fatigued people may lead to back injuries.

Changes in Lumbo pelvic motions in LBP

BMC Musculoskelet Disord. 2017 Apr 17;18(1):157. doi: 10.1186/s12891-017-1515-3.

The effects of bending speed on the lumbo-pelvic kinematics and movement pattern during forward bending in people with and without low back pain.

Tsang SMH¹, Szeto GPY², Li LMK², Wong DCM², Yip MMP², Lee RYW³.

BACKGROUND:

Impaired lumbo-pelvic movement in people with low back pain during bending task has been reported previously. However, the regional mobility and the pattern of the lumbo-pelvic movement were found to vary across studies. The inconsistency of the findings may partly be related to variations in the speed at which the task was executed. This study examined the effects of bending speeds on the kinematics and the coordination lumbo-pelvic movement during forward bending, and to compare the performance of individuals with and without low back pain.

METHODS:

The angular displacement, velocity and acceleration of the lumbo-pelvic movement during the repeated forward bending executed at five selected speeds were acquired using the three dimensional motion tracking system in seventeen males with low back pain and eighteen males who were asymptomatic. The regional kinematics and the degree of coordination of the lumbo-pelvic movement during bending was compared and analysed between two groups.

RESULTS:

Significantly compromised performance in velocity and acceleration of the lumbar spine and hip joint during bending task at various speed levels was shown in back pain group ($p < 0.01$). Both groups displayed a high degree of coordination of the lumbo-pelvic displacement during forward bending executed across the five levels of speed examined. Significant between-group difference was revealed in the coordination of the lumbo-pelvic velocity and acceleration ($p < 0.01$). Asymptomatic group moved with a progressively higher degree of lumbo-pelvic coordination for velocity and acceleration while the back pain group adopted a uniform lumbo-pelvic pattern across all the speed levels examined.

CONCLUSIONS:

The present findings show that bending speed imposes different levels of demand on the kinematics and pattern of the lumbo-pelvic movement. The ability to regulate the lumbo-pelvic movement pattern during the bending task that executed at various speed levels was shown only in pain-free individuals but not in those with low back pain. Individuals with low back pain moved with a stereotyped strategy at their lumbar spine and hip joints. This specific aberrant lumbo-pelvic movement pattern may have a crucial role in the maintenance of the chronicity in back pain.

Desk set up

BMJ Open. 2017 Apr 11;7(4):e014914. doi: 10.1136/bmjopen-2016-014914.

Risk factors of non-specific neck pain and low back pain in computer-using office workers in China: a cross-sectional study.

Ye S^{1,2}, Jing Q², Wei C³, Lu J².

OBJECTIVES:

Several studies have found that inappropriate workstations are associated with musculoskeletal disorders. The present cross-sectional study aimed to identify the risk factors of non-specific neck pain (NP) and low back pain (LBP) among computer-using workers.

DESIGN:

Observational study with a cross-sectional sample.

SETTING:

This study surveyed 15 companies in Zhejiang province, China.

PARTICIPANTS:

After excluding participants with missing variables, 417 office workers, including 163 men and 254 women, were analyzed.

OUTCOME MEASURES:

Demographic information was collected by self-report. The standard Northwick Park Neck Pain Questionnaire and Oswestry Low Back Pain Disability Index, along with other relevant questions, were used to assess the presence of potential occupational risk factors and the perceived levels of pain. Multinomial logistic regression analysis, adjusted for age, sex, body mass index, education, marital status and neck/low back injury, was performed to identify significant risk factors.

RESULTS:

Compared with low-level NP, the computer location (monitor not in front of the operator, but on the right or left side) was associated with ORs of 2.6 and 2.9 for medium- and high-level NP, respectively. For LBP, the computer location (monitor not in front) was associated with an OR of 3.2 for high-level pain, as compared with low-level pain, in females. Significant associations were also observed between the office temperature and LBP (OR 5.4 for high vs low), and between office work duration ≥ 5 years and NP in female office workers (OR 2.7 for medium vs low).

CONCLUSIONS:

Not having the computer monitor located in front of the operator was found to be an important risk factor for NP and LBP in computer-using female workers. This information may not only enable the development of potential preventive strategies but may also provide new insights for designing appropriate workstations

52. EXERCISE**Exercise compliance**

J Sci Med Sport. 2017 Mar 18. pii: S1440-2440(17)30330-4. doi: 10.1016/j.jsams.2017.02.008.

Effects of a brief action and coping planning intervention on completion of preventive exercises prescribed by a physiotherapist among people with knee pain.

Koh LH¹, Hagger MS², Goh VH³, Hart WG³, Gucciardi DF⁴.

OBJECTIVES:

The present study aimed to test the efficacy of action and coping planning in promoting engagement with preventive exercises among a sample of people with knee pain.

DESIGN:

Experimental trial.

METHODS:

Individuals who presented to a physiotherapist with knee pain (N=373, 57% female; M age=31.54, SD=10.06, age range=18-69 years) completed two assessments separated by 14 days. At baseline, participants completed measures of severity of problems associated with the knee (e.g., pain, symptoms) and past behavior. Subsequently, participants were randomly assigned to an action and coping planning or control group. Two weeks later, participants retrospectively reported their preventive exercise behavior over the past 14 days. Analyses revealed that the experimental group reported a higher number of preventive exercise sessions over the 14day period when compared with the control group.

RESULTS:

Participants who planned action and coping strategies reported a greater frequency of completed preventive exercises over a 2-week period than people who did not.

CONCLUSIONS:

The results of this study underscore the importance of action and coping planning for the enactment of preventive exercises that are designed to manage or prevent knee pain.

Back strengthening helps

J Sports Med Phys Fitness. 2017 Apr;57(4):411-417. doi: 10.23736/S0022-4707.16.06270-8. Epub 2016 Apr 1.

The effects of lumbar extensor strength on disability and mobility in patients with persistent low back pain.

Helmhout PH¹, Witjes M², Nijhuis-VAN DER Sanden RW³, Bron C^{3,4}, van Aalst M⁵, Staal JB³.

BACKGROUND:

It is assumed that low back pain patients who use pain-avoiding immobilizing strategies may benefit from specific back flexion and extension exercises aimed at reducing sagittal lumbar hypomobility. The aim of this study was to test this potential working mechanism in chronic low back pain patients undergoing lumbar extensor strengthening training.

METHODS:

A single-group prospective cohort design was used in this study. Patients with persistent low back complaints for at least 2 years were recruited at a specialized physical therapy clinics center. They participated in a progressive 11-week lumbar extensor strength training program, once a week. At baseline, sagittal lumbar mobility in flexion and extension was measured with a computer-assisted inclinometer. Self-rated pain intensity was measured using a visual analogue scale, back-specific functional status was assessed with the Quebec Back Pain Disability Scale and the Patient Specific Complaints questionnaire.

RESULTS:

Statistically significant improvements were found in pain (28% decrease) and functional disability (23% to 36% decrease). Most progress was seen in the first 5 treatment weeks. Lumbar mobility in flexion showed non-significant increases over time (+12%). Pre-post treatment changes in flexion and extension mobility did not contribute significantly to the models. The retained factors together explained 15% to 48% of the variation in outcome.

CONCLUSIONS:

Specific lumbar strengthening showed clinically relevant improvements in pain and disability in patients with persistent chronic low back pain. These improvements did not necessarily relate to improvements in lumbar mobility. Parameters representing other domains of adaptations to exercise may be needed to evaluate the effects of back pain management.

58. RUNNING**Leg power in sprinters**

Sports Biomech. 2017 Mar 29:1-11. doi: 10.1080/14763141.2016.1234639. [Epub ahead of print]

Joint power generation differentiates young and adult sprinters during the transition from block start into acceleration: a cross-sectional study.

Debaere S¹, Vanwanseele B², Delecluse C¹, Aerenhouts D³, Hagman F³, Jonkers I².

The aim of this study was to investigate differences in joint power generation between well-trained adult athletes and young sprinters from block clearance to initial contact of second stance.

Eleven under 16 (U16) and 18 under 18 (U18) promising sprinters executed an explosive start action. Fourteen well-trained adult sprinters completed the exact same protocol. All athletes were equipped with 74 spherical reflective markers, while an opto-electronic motion analysis system consisting of 12 infrared cameras (250 Hz, MX3, Vicon, Oxford Metrics, UK) and 2 Kistler force plates (1,000 Hz) was used to collect the three-dimensional marker trajectories and ground reaction forces (Nexus, Vicon). Three-dimensional kinematics, kinetics, and power were calculated (Opensim) and time normalised from the first action after gunshot until initial contact of second stance after block clearance.

This study showed that adult athletes rely on higher knee power generation during the first stance to induce longer step length and therefore higher velocity. In younger athletes, power generation of hip was more dominant.

Hip abductor strength

J Sci Med Sport. 2017 Apr;20(4):349-355. doi: 10.1016/j.jsams.2016.09.002. Epub 2016 Sep 20.

Hip abductor strength and lower extremity running related injury in distance runners: A systematic review.

Mucha MD¹, Caldwell W¹, Schlueter EL¹, Walters C¹, Hassen A².

OBJECTIVES:

Determine the association between hip abduction strength and lower extremity running related injury in distance runners.

DESIGN:

Systematic review.

METHODS:

Prospective longitudinal and cross sectional studies that quantified hip abduction strength and provided diagnosis of running related injury in distance runners were included and assessed for quality. Effect size was calculated for between group differences in hip abduction strength.

RESULTS:

Of the 1841 articles returned in the initial search, 11 studies matched all inclusion criteria. Studies were grouped according to injury: iliotibial band syndrome, patellofemoral pain syndrome, medial tibial stress syndrome, tibial stress fracture, and Achilles tendinopathy, and examined for strength differences between injured and non-injured groups. Meaningful differences were found in the studies examining iliotibial band syndrome. Three of five iliotibial band syndrome articles found weakness in runners with iliotibial band syndrome; two were of strong methodological rigor and both of those found a relationship between weakness and injury. Other results did not form associative or predictive relationships between weakness and injury in distance runners.

CONCLUSIONS:

Hip abduction weakness evaluated by hand held dynamometer may be associated with iliotibial band syndrome in distance runners as suggested by several cross sectional studies but is unclear as a significant factor for the development of patellofemoral pain syndrome, medial tibial stress syndrome, tibial stress fracture or Achilles tendinopathy according to the current literature. Future studies are needed with consistent methodology and inclusion of all distance running populations to determine the significance of hip abduction strength in relationship to lower extremity injury

59. PAIN**Stinkin thinkin**

Br J Health Psychol. 2017 Apr 3. doi: 10.1111/bjhp.12240. [Epub ahead of print]

'I call it stinkin' thinkin': A qualitative analysis of metacognition in people with chronic low back pain and elevated catastrophizing.

Schütze R¹, Rees C¹, Slater H², Smith A², O'Sullivan P².

OBJECTIVES:

Pain catastrophizing is widely studied in quantitative pain research because of its strong link with poor pain outcomes, although the exact nature of this construct remains unclear. Focusing on its ruminative dimension, the present qualitative study aimed to explore a nascent aspect of pain catastrophizing - metacognition - by documenting people's attitudes towards rumination and examining how these metacognitions might influence the course it takes.

DESIGN:

Qualitative interview study.

METHODS:

Semi-structured interviews were conducted in a tertiary care setting with 15 adults experiencing chronic (≥ 6 months) low back pain who scored highly (≥ 30) on the Pain Catastrophising Scale. Transcripts were analysed using interpretative phenomenological analysis.

RESULTS:

The first aim of documenting pain metacognitions revealed both positive (e.g., 'thinking helps me to cope') and negative (e.g., 'rumination is uncontrollable') attitudes towards pain rumination. These were often held simultaneously, creating internal conflict. The second aim of exploring the influence of metacognition on rumination showed that both negative and positive metacognitions could fuel perseverative thinking. However, more nuanced negative metacognitions (e.g., 'worry is pointless') could help to end episodes of rumination by motivating the use of concrete problem-solving or active coping behaviours.

CONCLUSIONS:

While most participants described pain rumination as uncontrollable and harmful, dwelling on pain could be helpful when focused on tangible and solvable problems, thereby translating into adaptive coping behaviours that eventually interrupt rumination. Future treatments may be more effective if they are based on individualized formulations of pain catastrophizing that focus on its perseverative nature and implicit function. Statement of contribution What is already known on this subject? Chronic pain affects one in five people, and psychological coping responses are key targets within gold standard biopsychosocial interventions. People who have elevated pain catastrophizing tend to have worse pain outcomes, including increased pain, disability, and emotional distress. What people believe about their own thinking (i.e., their metacognitions) influences how much they worry or ruminate. What does this study add? This is the first qualitative study exploring metacognitions in people with chronic pain and the first to target a purposive sample of people with elevated pain catastrophizing. People with elevated pain catastrophizing often see rumination as uncontrollable and harmful but may simultaneously believe it helps them to solve problems or feel prepared for future threats. Pain catastrophizing is not a stable and enduring trait but fluctuates both within and across individuals in response to pain, context, metacognitive beliefs about rumination, and coping behaviours.

Exercise and pain

J Physiol. 2017 Mar 29. doi: 10.1113/JP273355.

Does exercise increase or decrease pain? Central mechanisms underlying these two phenomena.

Lima LV¹, Abner TS¹, Sluka KA¹.

Exercise is an integral part of the rehabilitation of patients suffering a variety of chronic musculoskeletal conditions, such as fibromyalgia, chronic low back pain and myofascial pain.

Regular physical activity is recommended for treatment of chronic pain and its effectiveness has been established in clinical trials for people with a variety of pain conditions. However, exercise can also increase pain making participation in rehabilitation challenging for the person with pain. Animal models of exercise-induced pain have been developed and point to central mechanisms underlying this phenomena, such as increased activation of NMDA receptors in pain-modulating areas. Meanwhile, a variety of basic science studies testing different exercise protocols, show exercise-induced analgesia involves activation of central inhibitory pathways.

Opioid, serotonin and NMDA mechanisms acting in rostral ventromedial medulla (RVM) promote analgesia associated with exercise.

This review explores and discusses current evidence on central mechanisms underlying exercised-induced pain and analgesia. This article is protected by copyright. All rights reserved.

Pain modulation and endurance exercise

es Sports Med. 2017 Apr 10:1-13. doi: 10.1080/15438627.2017.1314291. [

Examining the relationship between endogenous pain modulation capacity and endurance exercise performance.

Flood A^{1,2}, Waddington G^{2,3}, Cathcart S^{1,2}.

The aim of the current study was to examine the relationship between pain modulatory capacity and endurance exercise performance.

Twenty-seven recreationally active males between 18 and 35 years of age participated in the study. Pain modulation was assessed by examining the inhibitory effect of a noxious conditioning stimulus (cuff occlusion) on the perceived intensity of a second noxious stimulus (pressure pain threshold). Participants completed two, maximal voluntary contractions followed by a submaximal endurance time task. Both performance tasks involved an isometric contraction of the non-dominant leg.

The main analysis uncovered a correlation between pain modulatory capacity and performance on the endurance time task ($r = -.425$, $p = .027$), such that those with elevated pain modulation produced longer endurance times. These findings are the first to demonstrate the relationship between pain modulation responses and endurance exercise performance.

Expectation of pain

Pain. 2017 May;158(5):922-930. doi: 10.1097/j.pain.0000000000000859.

Does expecting more pain make it more intense? Factors associated with the first week pain trajectories after breast cancer surgery.

Sipilä RM¹, Haasio L, Meretoja TJ, Ripatti S, Estlander AM, Kalso EA.

The aim of this study was to identify clinical risk factors for unfavorable pain trajectories after breast cancer surgery, to better understand the association between pain expectation, psychological distress, and acute postoperative pain.

This prospective study included 563 women treated for breast cancer. Psychological data included questionnaires for depressive symptoms and anxiety. Experimental pain tests for heat and cold were performed before surgery. The amount of oxycodone needed for satisfactory pain relief after surgery was recorded. Pain intensity in the area of operation before surgery and during the first postoperative week and expected intensity of postoperative pain were recorded using the Numerical Rating Scale (NRS 0-10).

Pain trajectories were formed to describe both initial intensity (the intercept) and the direction of the pain path (the slope). Factors associated with higher initial pain intensity (the intercept) were the amount of oxycodone needed for adequate analgesia, psychological distress, type of axillary surgery, preoperative pain in the area of the operation, and expectation of postoperative pain

The higher the pain initially was, the faster it resolved over the week. Expectation of severe postoperative pain was associated with higher scores of both experimental and clinical pain intensity and psychological factors.

The results confirm that acute pain after breast cancer surgery is a multidimensional phenomenon. Psychological distress, pain expectation, and the patients' report of preoperative pain in the area to be operated should be recognized before surgery. Patients having axillary clearance need more efficient analgesic approaches

Phantom limb pain and central blood flow

Arch Phys Med Rehabil. 2017 Apr 6. pii: S0003-9993(17)30223-X. doi: 10.1016/j.apmr.2017.03.010.

Preliminary Investigation of Pain-related Changes in Cerebral Blood Volume in Patients with Phantom Limb Pain.

Seo CH¹, Park CH², Jung MH³, Jang S¹, Joo SY¹, Kang Y¹, Ohn SH⁴.

OBJECTIVE:

We utilized MRI to measure CBV in patients who had undergone unilateral arm amputation following electrical injury to investigate changes in the pain network associated with phantom limb pain.

DESIGN:

Case-controlled exploratory MRI study of cerebral blood volume (CBV) via magnetic resonance imaging (MRI) SETTING: University hospital PARTICIPANTS: Ten patients with phantom limb pain following unilateral arm amputation and 16 healthy, age-matched participants.

INTERVENTIONS:

None MAIN OUTCOME MEASURES: The intensity of phantom limb pain was measured using the Visual Analogue Scale (VAS). Depressive mood was assessed using the Hamilton Depression Rating Scale (HDRS), and cognitive function was assessed using the Korean version of the Mini Mental State Examination (MMSE-K). Voxel-wise comparisons of relative CBV maps were made between amputees and controls over the entire brain volume. The relationship between individual participant CBV (measured in voxels) and VAS score was also examined.

RESULTS:

Compared to control participants, amputees exhibited greater degrees of depression; significantly higher CBV in the bilateral medial frontal area (orbitofrontal cortex [OFC] and pregenual anterior cingulate cortex [pACC]); and significantly lower CBV in the right mid-cingulate cortex, posterior cingulate cortex, and primary somatosensory cortex. CBV increased in the contralateral and ipsilateral hemispheres of the amputated arm, regardless of the amputation side. This CBV increase was strongly correlated with pain intensity in the OFC and pACC in all amputees.

CONCLUSIONS:

We observed increased CBV in regions associated with emotion in the cerebral pain network of patients who had undergone unilateral arm amputation following electrical injury. This study suggests that CBV changes were related to neuroplasticity associated with phantom limb pain.

Pain site

BMC Musculoskelet Disord. 2017 Mar 29;18(1):130. doi: 10.1186/s12891-017-1487-3.

Clinical course and prognosis of musculoskeletal pain in patients referred for physiotherapy: does pain site matter?

de Vos Andersen NB¹, Kent P^{2,3}, Hjort J⁴, Christiansen DH⁵.

BACKGROUND:

Danish patients with musculoskeletal disorders are commonly referred for primary care physiotherapy treatment but little is known about their general health status, pain diagnoses, clinical course and prognosis. The objectives of this study were to 1) describe the clinical course of patients with musculoskeletal disorders referred to physiotherapy, 2) identify predictors associated with a satisfactory outcome, and 3) determine the influence of the primary pain site diagnosis relative to those predictors.

METHODS:

This was a prospective cohort study of patients (n = 2,706) newly referred because of musculoskeletal pain to 30 physiotherapy practices from January 2012 to May 2012. Data were collected via a web-based questionnaire 1-2 days prior to the first physiotherapy consultation and at 6 weeks, 3 and 6 months, from clinical records (including primary musculoskeletal symptom diagnosis based on the ICPC-2 classification system), and from national registry data. The main outcome was the Patient Acceptable Symptom State. Potential predictors were analysed using backwards step-wise selection during longitudinal Generalised Estimating Equation regression modelling. To assess the influence of pain site on these associations, primary pain site diagnosis was added to the model.

RESULTS:

Of the patients included, 66% were female and the mean age was 48 (SD 15). The percentage of patients reporting their symptoms as acceptable was 32% at 6 weeks, 43% at 3 months and 52% at 6 months. A higher probability of satisfactory outcome was associated with place of residence, being retired, no compensation claim, less frequent pain, shorter duration of pain, lower levels of disability and fear avoidance, better mental health and being a non-smoker. Primary pain site diagnosis had little influence on these associations, and was not predictive of a satisfactory outcome.

CONCLUSION:

Only half of the patients rated their symptoms as acceptable at 6 months. Although satisfactory outcome was difficult to predict at an individual patient level, there were a number of prognostic factors that were associated with this outcome. These factors should be considered when developing generic prediction tools to assess the probability of satisfactory outcome in musculoskeletal physiotherapy patients, because the site of pain did not affect that prognostic association.

60. COMPLEX REGIONAL PAIN**Somatosensory rehabilitation**

J Hand Ther. 2017 Mar 23. pii: S0894-1130(17)30039-X. doi: 10.1016/j.jht.2017.02.007.

Somatosensory rehabilitation for allodynia in complex regional pain syndrome of the upper limb: A retrospective cohort study.

Packham TL¹, Spicher CJ², MacDermid JC³, Michlovitz S⁴, Buckley DN⁵.

STUDY DESIGN:

Retrospective cohort study.

INTRODUCTION:

Somatosensory rehabilitation is a standardized method of evaluation and conservative treatment of painful disorders of vibrotactile sensation, including the mechanical allodynia and burning pain of complex regional pain syndrome (CRPS).

PURPOSE OF THE STUDY:

The purpose of this study was to examine the effectiveness of somatosensory rehabilitation for reducing allodynia in persons with CRPS of 1 upper limb in a retrospective consecutive cohort of patients.

METHODS:

An independent chart review of all client records (May 2004-August 2015) in the Somatosensory Rehabilitation Centre (Fribourg, Switzerland) identified 48 persons meeting the Budapest criteria for CRPS of 1 limb who had undergone assessment and treatment. Outcomes of interest were the French version of the McGill Pain Questionnaire (Questionnaire de la Douleur St-Antoine [QDSA]), total area of allodynia as recorded by mapping the area of skin where a 15-g monofilament was perceived as painful, and the allodynia threshold (minimum pressure required to elicit pain within the allodynic territory).

RESULTS:

This cohort was primarily women (70%), with a mean age of 45 years (range: 18-74). Mean duration of burning pain was 31 months (range: 1 week-27.5 years), and baseline QDSA core was 48. The average primary area of allodynia was 66 cm² (range: 2.6-320), and the most common allodynia threshold was 4.0 g. The average duration of treatment was 81 days. At cessation of treatment, the average QDSA score was 20 (effect size Cohen's $d = 1.64$). Allodynia completely resolved in 27 persons (56% of the total sample where only 58% completed treatment).

DISCUSSION:

This uncontrolled retrospective study suggests that somatosensory rehabilitation may be an effective treatment with a large effect size for reducing the allodynia and painful sensations associated with CRPS of the upper limb. More work is in progress to provide estimates of reliability and validity for the measurement tools for allodynia employed by this method.

62 A. NUTRITION/VITAMINS**Crohn's disease****Impact of vitamin D on the hospitalization rate of Crohn's disease patients seen at a tertiary care center**

World Journal of Gastroenterology
Venkata KVR, et al.

sponsor

In this study, the authors examine the association between vitamin D level and hospitalization rate in Crohn's disease (CD) patients. In the clinical course of CD, normal or adequate vitamin D stores may be protective. This role, however, needs to be further characterized and understood.

Methods

- The authors planned a retrospective cohort study using adult patients (> 19 years) with CD followed for at least 1 year at their inflammatory bowel disease center.
- They divided vitamin D levels into: low mean vitamin D level (< 30 ng/mL) vs appropriate mean vitamin D level (30-100 ng/mL).
- They used Generalized Poisson Regression Models (GPR) for Rate Data to estimate partially adjusted and fully adjusted incidence rate ratios (IRR) of hospitalization among CD patients.
- Also, they examined IRRs for vitamin D level as a continuous variable.

Results

- The authors included 196 patients with vitamin D level during the observation period, out of the 880 CD patients.
- Partially adjusted model showed that compared to those with an appropriate vitamin D level, CD patients with a low mean vitamin D level were almost twice more likely to be admitted (IRR = 1.76, 95%CI: 1.38-2.24).
- The fully adjusted model affirmed this relationship (IRR = 1.44, 95%CI: 1.11-1.87).
- As a continuous variable, partially adjusted model with vitamin D level demonstrated, higher mean vitamin D level was associated with a 3% lower likelihood of admission with every unit (ng/mL) rise in mean vitamin D level (IRR = 0.97, 95%CI: 0.96-0.98).
- This relationship was affirmed by fully adjusted model (IRR = 0.98, 95%CI: 0.97-0.99).

Whole grain healthy!

Nutr J. 2017 Apr 21;16(1):25. doi: 10.1186/s12937-017-0246-5.

Effects of whole grain rye, with and without resistant starch type 2 supplementation, on glucose tolerance, gut hormones, inflammation and appetite regulation in an 11-14.5 hour perspective; a randomized controlled study in healthy subjects.

Sandberg JC¹, Björck IME², Nilsson AC².

BACKGROUND:

The prevalence of obesity is increasing worldwide and prevention is needed. Whole grain has shown potential to lower the risk of obesity, cardiovascular disease and type 2 diabetes. One possible mechanism behind the benefits of whole grain is the gut fermentation of dietary fiber (DF), e.g. non-starch polysaccharides and resistant starch (RS), in whole grain. The purpose of the study is to investigate the effect of whole grain rye-based products on glucose- and appetite regulation.

METHOD:

Twenty-one healthy subjects were provided four rye-based evening test meals in a crossover overnight study design. The test evening meals consisted of either whole grain rye flour bread (RFB) or a 1:1 ratio of whole grain rye flour and rye kernels bread (RFB/RKB), with or without added resistant starch (+RS). White wheat flour bread (WWB) was used as reference evening meal. Blood glucose, insulin, PYY, FFA, IL-6 as well as breath H₂ and subjective rating of appetite were measured the following morning at fasting and repeatedly up to 3.5 h after a standardized breakfast consisting of WWB. Ad libitum energy intake was determined at lunch, 14.5 h after evening test and reference meals, respectively.

RESULTS:

The evening meal with RFB/RKB + RS decreased postprandial glucose- and insulin responses (iAUC) ($P < 0.05$) and increased the gut hormone PYY in plasma the following morning 0-120 min after the standardized breakfast, compared to WWB ($P = 0.01$). Moreover, RFB increased subjective satiety and decreased desire to eat, and both RFB and RFB/RKB decreased feeling of hunger (AUC 0-210 min). All rye-based evening meals decreased or tended to decrease fasting FFA ($P < 0.05$, RFB/RKB: $P = 0.057$) and increased breath hydrogen concentration (0-120 min, $P < 0.001$). No effects were noted on energy intake at lunch or inflammatory marker IL-6 (0 + 180 min) after the rye-based evening meals, compared to WWB.

CONCLUSION:

Whole grain rye bread has the potential to improve cardiometabolic variables in an 11-14.5 h perspective in healthy humans. The combination RFB/RKB + RS positively affected biomarkers of glucose- and appetite regulation in a semi-acute perspective. Meanwhile, RFB and RFB/RKB improved subjective appetite ratings. The effects probably emanate from gut fermentation events.

Coffee reduces risk of prostate CA

Int J Cancer. 2017 Apr 24. doi: 10.1002/ijc.30720.

Reduction by coffee consumption of prostate cancer risk: Evidence from the Moli-sani cohort and cellular models.

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Meta-analytic data on the effect of coffee in prostate cancer risk are controversial.

Caffeine as a bioactive compound of coffee has not yet been studied in deep in vitro. Our study aimed at evaluating in a population cohort the effect of Italian-style coffee consumption on prostate cancer risk and at investigating in vitro the potential antiproliferative and antimetastatic activity of caffeine on prostate cancer cell lines. 6,989 men of the Moli-sani cohort aged ≥ 50 years were followed for a mean of 4.24 ± 1.35 years and 100 new prostate cancer cases were identified.

The European Prospective Investigation into Cancer and Nutrition-Food Frequency Questionnaire was used for the dietary assessment and the evaluation of Italian-style coffee consumption. Two human prostate cancer cell lines, PC-3 and DU145, were tested with increasing concentrations of caffeine, and their proliferative/metastatic features were evaluated. The newly diagnosed prostate cancer participants presented lower coffee consumption (60.1 ± 51.3 g/day) compared to the disease-free population (74.0 ± 51.7 g/day) ($p < 0.05$). Multiadjusted analysis showed that the subjects at highest consumption (>3 cups/day) had 53% lower prostate cancer risk as compared to participants at the lowest consumption (0-2 cups/day) ($p = 0.02$).

Both human prostate cancer cell lines treated with caffeine showed a significant reduction in their proliferative and metastatic behaviors ($p < 0.05$). In conclusion, reduction by Italian-style coffee consumption of prostate cancer risk (>3 cups/day) was observed in epidemiological level.

Caffeine appeared to exert both antiproliferative and antimetastatic activity on two prostate cancer cell lines, thus providing a cellular confirmation for the cohort study results.

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Coffee and neuro conditions

Can coffee consumption lower the risk of Alzheimer's disease and Parkinson's disease? A literature review

Archives of Medical Science

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An observational study was carried out to determine whether coffee intakes lowers the risk of Alzheimer's disease and Parkinson's disease. At present, it appears to be safe to advise the general public that coffee drinkers need not fear for their health. Perhaps, later on, experts will suggest drinking coffee not only to satisfy individual taste preferences as well as to reduce age-related mental deterioration.

- In light of the fact that the number of elderly citizens in society is steadily increasing, the search for dietary variables which might prolong mental agility is growing in significance.
- Coffee, together with its main ingredient, caffeine, has been the focus of much attention from different analysts, as information on its beneficial effects on human health continues to accumulate.
- Most reports show that moderate coffee intake may, in fact, lower the risk for common neurodegenerative conditions, i.e. Alzheimer's and Parkinson's diseases.
- Regardless, because of their complex pathogenesis and also methodology of scientific research, the exact effect of coffee intake remains to be completely explained.

Coffee reduces risk of CR CA

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J-shaped relationship between habitual coffee consumption and 10-year (2002-2012) cardiovascular disease incidence: the ATTICA study.

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PURPOSE:

The purpose of this work was to evaluate the association between coffee consumption and 10-year cardiovascular disease (CVD) incidence in the ATTICA study, and whether this is modified by the presence or absence of metabolic syndrome (MetS) at baseline.

METHODS:

During 2001-2002, 3042 healthy adults (1514 men and 1528 women) living in the greater area of Athens were voluntarily recruited to the ATTICA study. In 2011-2012, the 10-year follow-up was performed in 2583 participants (15% of the participants were lost to follow-up). Coffee consumption was assessed by a validated food-frequency questionnaire at baseline (abstention, low, moderate, heavy). Incidence of fatal or non-fatal CVD event was recorded using WHO-ICD-10 criteria and MetS was defined by the National Cholesterol Education Program Adult Treatment panel III (revised) criteria.

RESULTS:

Overall, after controlling for potential CVD risk factors, the multivariate analysis revealed a J-shaped association between daily coffee drinking and the risk for a first CVD event in a 10-year period. Particularly, the odds ratio for low (<150 ml/day), moderate (150-250 ml/day) and heavy coffee consumption (>250 ml/day), compared to abstention, were 0.44 (95% CI 0.29-0.68), 0.49 (95% CI 0.27-0.92) and 2.48 (95% CI 1.56-1.93), respectively. This inverse association was also verified among participants without MetS at baseline, but not among participants with the MetS.

CONCLUSIONS:

These data support the protective effect of drinking moderate quantities of coffee (equivalent to approximately 1-2 cups daily) against CVD incidents. This protective effect was only significant for participants without MetS at baseline.

62 B. CRYOTHERAPY**Pre cooling**

J Therm Biol. 2017 Apr;65:88-94. doi: 10.1016/j.jtherbio.2017.02.017. Epub 2017 Feb 27.

The effect of local skin cooling before a sustained, submaximal isometric contraction on fatigue and isometric quadriceps femoris performance: A randomized controlled trial.

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The central- and peripheral mechanisms by which heat strain limits physical performance are not fully elucidated.

Nevertheless, pre-cooling is often used in an attempt to improve subsequent performance. This study compared the effects of pre-cooling vs. a pre-thermoneutral application on central- and peripheral fatigue during 60% of isometric maximum voluntary contraction (MVC) of the right quadriceps femoris muscle. Furthermore, the effects between a pre-cooling and a pre-thermoneutral application on isometric MVC of the right quadriceps femoris muscle and subjective ratings of perceived exertion (RPE) were investigated. In this randomized controlled trial, 18 healthy adults voluntarily participated. The participants received either a cold (experimental) application (+8°C) or a thermoneutral (control) application (+32°C) for 20min on their right thigh (one cuff). After the application, central (fractal dimension - FD) and peripheral (muscle fiber conduction velocity - CV) fatigue was estimated using sEMG parameters during 60% of isometric MVC. Surface EMG signals were detected from the vastus medialis and lateralis using bidimensional arrays. Immediately after the submaximal contraction, isometric MVC and RPE were assessed. Participants receiving the cold application were able to maintain a 60% isometric MVC significantly longer when compared to the thermoneutral group (mean time: 78 vs. 46s; p=0.04). The thermoneutral application had no significant impact on central fatigue (p>0.05) compared to the cold application (p=0.03). However, signs of peripheral fatigue were significantly higher in the cold group compared to the thermoneutral group (p=0.008). Pre-cooling had no effect on isometric MVC of the right quadriceps muscle and ratings of perceived exertion.

Pre-cooling attenuated central fatigue and led to significantly longer submaximal contraction times compared to the pre-thermoneutral application. These findings support the use of pre-cooling procedures prior to submaximal exercises of the quadriceps muscle compared to pre-thermoneutral applications.

64. ELECTROTHERAPY**Electrical stimulation for LBP**

Eur J Pain. 2017 Apr 25. doi: 10.1002/ejp.1037.

Treating low back pain with combined cerebral and peripheral electrical stimulation: A randomized, double-blind, factorial clinical trial.

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Author information

Abstract

BACKGROUND:

Recent evidence suggests that chronic low back pain is associated with plastic changes in the brain that can be modified by neuromodulation strategies. This study investigated the efficacy of transcranial direct current stimulation (tDCS) combined simultaneously with peripheral electrical stimulation (PES) for pain relief, disability and global perception in patients with chronic low back pain (CLBP).

METHODS:

Ninety-two patients with CLBP were randomized to receive 12 sessions on nonconsecutive days of anodal tDCS (primary motor cortex, M1), 100 Hz sensory PES (lumbar spine), tDCS + PES or sham tDCS + PES. Pain intensity (11-point numerical rating scale), disability and global perception were applied before treatment and four weeks, three months and six months post randomization.

RESULTS:

A two points reduction was achieved only by the tDCS + PES (mean reduction [MR] = -2.6, CI95% = -4.4 to -0.9) and PES alone (MR = -2.2, CI95% = -3.9 to -0.4) compared with the sham group, but not of tDCS alone (MR = -1.7, CI95% = -3.4 to -0.0). In addition to maintaining the analgesic effect for up to three months, tDCS + PES had a higher proportion of respondents in different cutoff points. Global perception was improved at four weeks and maintained three months after treatment only with tDCS + PES. None of the treatments improved disability and the affective aspect of pain consistently with pain reduction.

CONCLUSION:

The results suggest that tDCS + PES and PES alone are effective in relieving CLBP in the short term. However, only tDCS + PES induced a long-lasting analgesic effect. tDCS alone showed no clinical meaningful pain relief.

SIGNIFICANCE:

Transcranial direct current stimulation combined simultaneously with PES leads to a significant and clinical pain relief that can last up to three months in chronic low back pain patients. For this article, a commentary is available at the Wiley Online Library.