

2. LBP

Classification system

Musculoskelet Sci Pract. 2018 Apr;34:66-76. doi: 10.1016/j.msksp.2018.01.002. Epub 2018 Jan 8.

Clinical classification criteria for nonspecific low back pain: A Delphi-survey of clinical experts.

Dewitte V¹, De Pauw R², De Meulemeester K³, Peersman W⁴, Danneels L⁵, Bouche K⁶, Roets A⁷, Cagnie B⁸.

BACKGROUND:

Nonspecific low back pain (NSLBP) is a common problem. Attempts have been made to classify NSLBP patients into homogenous subgroups. Classification systems based on identifying the underlying mechanism(s) driving the disorder are clinically useful to guide specific interventions.

OBJECTIVE:

To establish consensus among experts regarding clinical criteria suggestive of a dominance of 'articular', 'myofascial', 'neural', 'central', and 'sensorimotor control' dysfunction patterns (DPs) in NSLBP patients.

STUDY DESIGN:

A 2-phase sequential design of a focus group and Delphi-study.

METHODS:

A focus group with 10 academic experts was organized to elaborate on the different DPs discernible in LBP patients. Consecutively, a 3-round online Delphi-survey was designed to obtain consensual symptoms and physical examination findings for the 5 DPs resulting from the focus group.

RESULTS:

Fifteen musculoskeletal physical therapists from Belgium and the Netherlands experienced in assessing and treating LBP patients completed the Delphi-survey. Respectively, 34 (response rate, 100.0%), 20 (58.8%) and 15 (44.12%) respondents replied to rounds 1, 2 and 3. Twenty-two 'articular', 20 'myofascial', 21 'neural', 18 'central' and 11 'sensorimotor control' criteria reached a predefined $\geq 80\%$ consensus level. For example, after round 2, 85.0% of the Delphi-experts agreed to identify 'referred pain below the knee' as a subjective examination criterion suggestive for a predominant 'neural DP'.

CONCLUSION:

These indicators suggestive of a clinical dominance of the proposed DPs could help clinicians to assess and diagnose NSLBP patients. Future reliability and validity testing is needed to determine how these criteria may help to improve physical therapy outcome for NSLBP patients.

Walking and LBP

Musculoskelet Sci Pract. 2018 Apr;34:38-46. doi: 10.1016/j.msksp.2017.12.003. Epub 2017 Dec 12.

The effects of walking intervention in patients with chronic low back pain: A meta-analysis of randomized controlled trials.

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OBJECTIVE:

The aim of this meta-analysis of randomized controlled trials was to gain insight into the effectiveness of walking intervention on pain, disability, and quality of life in patients with chronic low back pain (LBP) at post intervention and follow ups.

METHOD:

Six electronic databases (PubMed, Science Direct, Web of Science, Scopus, PEDro and The Cochrane library) were searched from 1980 to October 2017. The following keywords were used: Walk* or Pedometer* or Accelerometer* or Treadmill* paired with "Back pain", "Low back pain", "Chronic low back pain", "LBP", or "Backache". Randomized controlled trials in patients with chronic LBP were included if they compared the effects of walking intervention to non-pharmacological interventions. Pain, disability, and quality of life were the primary health outcomes.

RESULTS:

Nine studies were suitable for meta-analysis. Data was analyzed according to the duration of follow-up (short-term, < 3 months; intermediate-term, between 3 and 12 months; long-term, > 12 months). Low- to moderate-quality evidence suggests that walking intervention in patients with chronic LBP was as effective as other non-pharmacological interventions on pain and disability reduction in both short- and intermediate-term follow ups.

CONCLUSIONS:

Unless supplementary high-quality studies provide different evidence, walking, which is easy to perform and highly accessible, can be recommended in the management of chronic LBP to reduce pain and disability.

5. SURGERY

Microendoscopic better

In-hospital complication rate following microendoscopic vs open lumbar laminectomy: A propensity score-matched analysis

The Spine Journal — | March 26, 2018

Oichi T, et al.

Herein, authors drew a comparison in the postoperative morbidity and mortality after lumbar laminectomy between patients treated with microendoscopic laminectomy (MEL) and open laminectomy. A significantly less likeliness to experience major postoperative complications, to develop surgical site infection and postoperative delirium was noted in those who underwent MEL vs who underwent open laminectomy.

Methods

- Researchers conducted a retrospective cohort study with propensity score-matched analysis.
- They extracted the data of patients who underwent elective spinal surgery between July 2010 and March 2013 from the Diagnosis Procedure Combination database, a nationwide inpatient database in Japan.
- Length of hospital stay, occurrence of major complications (cardiac events, respiratory complications, pulmonary embolism, stroke and acute renal failure), surgical site infection, postoperative delirium and in-hospital death were the clinical outcomes.
- In order to adjust for measured confounding factors, including patient age, sex, Charlson Comorbidity Index, BMI, smoking status, blood transfusion, duration of anesthesia, number of operated disc levels, type of hospital and hospital volumes they performed propensity score matching.
- Experts compared the clinical outcomes of one-to-one propensity-matched pairs of the MEL and open laminectomy groups.

Results

- Results demonstrated that out of 23,317 patients identified in the database, 1,536 had undergone MEL (6.6%).
- A total of 1,536 pairs were selected using one-to-one propensity score matching.
- A close balance was maintained in the distributions of patient backgrounds between the MEL and open laminectomy groups.
- On analysis of 1,536 pairs they noted that there was a significantly lower incidence of major postoperative complications in those who had undergone MEL (1.0% vs 2.8% for open laminectomy, risk difference 1.8%, 95% confidence interval [CI] 0.9%–2.9%), surgical site infection (0.5% vs 1.6% for open laminectomy, risk difference 1.1%, 95% CI 0.4%–1.9%) and postoperative delirium (1.1% vs 2.3% for open laminectomy, risk difference 1.2%, 95% CI 0.3%–2.1%).
- A significantly shorter length of hospital stay was noted in those treated with MEL (12 days vs 16 days for open laminectomy, $p < 0.001$).
- As per data, no significant difference in in-hospital mortality between the groups was seen.

3 level spondylolisthesis

J Orthop Surg Res. 2018 Mar 16;13(1):55. doi: 10.1186/s13018-018-0723-3.

Double-level lumbar spondylolysis and spondylolisthesis: A retrospective study.

Zhang S^{1,2}, Ye C^{1,2}, Lai Q^{1,2}, Yu X¹, Liu X¹, Nie T¹, Zhan H^{1,2}, Dai M³, Zhang B⁴.

BACKGROUND:

Lumbar spondylolysis and isthmic spondylolisthesis are common conditions. However, double-level lumbar spondylolysis and spondylolisthesis are rare. We report 24 cases of it along with a review of literature and a briefly description of the clinical and radiological features and integrated management of patients with this condition.

METHODS:

Of 1700 inpatients diagnosed with lumbar spondylolisthesis at our hospital between January 2008 and September 2015, we selected those with a diagnosis of double-level spondylolisthesis who underwent surgery. We analyzed the data regarding age, sex, and heavy physical labour. Japanese Orthopaedic Association (JOA) and Visual Analog Scale (VAS) scores were used to evaluate preoperative and postoperative neurological function and back pain. All patients underwent decompression, reduction, and posterior lumbar interbody fusion (PLIF) with autogenous bone chips from posterior decompression or with a cage. After the operation, we were followed up for more than 2 years to observe the effect of the operation. In the meantime, the height of the intervertebral discs was measured at follow-up, and all data are analyzed in SPSS stastic.

RESULTS:

Double-level spondylolisthesis occurred at the L2/L3 and L3/L4 levels in one patient, L3/4 and L4/L5 levels in 11 patients, and L4/L5 and L5/S1 levels in 12 patients. Nine patients also had spondylolysis. Twenty patients underwent posterior lumbar interbody fusion and internal fixation with autologous bone chip, and 4 of them underwent cage and autogenous bone graft fixation. Postoperatively, the major symptoms (neurological dysfunction and low-back pain) improved significantly. Comparison of JOA and VAS scores indicated effective recovery of neurological function ($p < 0.05$). Postoperative follow-up demonstrated satisfactory interbody fusion and pars interarticularis healing.

CONCLUSIONS:

Double-level lumbar spondylolysis and spondylolisthesis occurred more often in women. Most common site of double lumbar spondylolisthesis was L3-L5. The treatment principle was the same as that for single-level spondylolisthesis, but the reset order is questionable. Both, posterior lumbar interbody fusion (PLIF) with autogenous bone chips from posterior decompression or with cage can relieve discomfort in most patients. In our follow-up, we found that there was a high degree of loss in disk height when autogenous bone was used. Therefore, we suggest the use of a cage.

KEYWORDS: Double-level; Spondylolisthesis; Spondylolysis PMID:548343 DOI: 10.1186/s13018-018-0723-3

7. PELVIC ORGANS/WOMAN'S HEALTH

Posture and diastasis

Musculoskelet Sci Pract. 2018 Apr;34:1-7. doi: 10.1016/j.msksp.2017.11.010. Epub 2017 Nov 22.

Effects of posture and anatomical location on inter-recti distance measured using ultrasound imaging in parous women.

Gillard S¹, Ryan CG², Stokes M³, Warner M³, Dixon J².

STUDY DESIGN:

Cross-sectional repeated measures.

OBJECTIVES:

To quantify the effects of posture and measurement site on the inter-recti distance (IRD) and investigate the reliability of IRD measurement using ultrasound imaging in different postures.

BACKGROUND:

The linea alba connects the rectus abdominis muscles anteriorly and the width is known as the IRD. The IRD is usually measured in crook-lying and is the primary outcome measure to assess for a divarication of recti abdominis (DRA). The effects of posture and measurement site on the IRD have not been investigated.

METHODS:

Ultrasound imaging was used to measure IRD in 41 women ≥ 8 weeks postpartum. The IRD was measured at three sites (superior-umbilicus, umbilicus and inferior-umbilicus), in three postures (crook-lying, sitting and standing), and repeated one-week later. The effects of posture and site were investigated using one-way ANOVAs. Reliability was analysed using Intraclass correlation coefficients (ICCs), Bland Altman analyses, standard error of measurement and minimal detectable change.

RESULTS:

The IRD was wider when standing vs. lying at both the superior-umbilicus and umbilicus by 0.30 cm (95% CI 0.21 to 0.39) and 0.20 cm (0.11-0.30) respectively ($p < 0.001$). Measurements at the inferior-umbilicus were, on average, 1.6 and 2.1 cm narrower than superior-umbilicus and umbilicus sites, respectively ($p < 0.001$). There was high intra-rater reliability within-session ($ICC_{3,3}$) and between-session ($ICC_{3,1}$) at all sites measured.

CONCLUSION:

The IRD can be measured reliably at all sites and postures. The IRD is wider at superior-umbilicus and umbilicus when upright compared with lying. There is a difference in IRD between all sites measured.

LP pain and pelvic floor dysfunction

Musculoskelet Sci Pract. 2018 Apr;34:47-53. doi: 10.1016/j.msksp.2017.12.001. Epub 2017 Dec 9.

Association between lumbopelvic pain and pelvic floor dysfunction in women: A cross sectional study.

Dufour S¹, Vandyken B², Forget MJ³, Vandyken C³.

BACKGROUND:

The prevalence, cost and disability associated with lumbopelvic pain continues to rise despite the range of available therapeutic interventions, indicating a deficiency in current approaches. A literature base highlighting a correlation between lumbopelvic pain and pelvic floor function is developing; however, the features that characterize this correlation have yet to be fully established.

PURPOSE:

The purpose of this study was to determine the prevalence and characteristics of pelvic floor muscle function among women with lumbopelvic pain.

METHODS:

A cross-sectional study was conducted on non-pregnant women presenting with lumbopelvic pain to one of seven outpatient orthopaedic clinics in Canada. Potential participants underwent a screening process to assess for pelvic floor muscle dysfunction.

RESULTS:

A total of 182 women were recruited and 97 were excluded, leaving 85 participants (n = 85). Of these, 95.3% were determined to have some form of pelvic floor dysfunction. Specifically, 71% of the participants had pelvic floor muscle tenderness, 66% had pelvic floor weakness and 41% were found to have a pelvic organ prolapse. Participants with combined low back pain and pelvic girdle pain presented with higher levels of disability and increased characteristics of pelvic floor dysfunction.

CONCLUSIONS:

Our findings corroborate and extend recent research supporting the hypothesis that a high proportion of pelvic floor muscle dysfunction is present among women with lumbopelvic pain. Specifically, increased pelvic floor muscle pressure-pain sensitivity represented the most frequent characteristic, the clinical implications of which require further study.

Vaginal care

Original Investigation March 19, 2018

Efficacy of Vaginal Estradiol or Vaginal Moisturizer vs Placebo for Treating Postmenopausal Vulvovaginal Symptoms: A Randomized Clinical Trial

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Key Points

Question Does 12-week treatment with vaginal 10- μ g estradiol tablet or vaginal moisturizer improve postmenopausal vulvovaginal symptoms more than placebo? **Findings** In a randomized clinical trial of 302 postmenopausal women with moderate-to-severe vulvovaginal symptoms, vaginal 10- μ g estradiol tablet plus placebo gel and vaginal moisturizer plus placebo tablet were not more efficacious than dual placebo at reducing symptom severity or improving sexual function. **Meaning** Shared decision making for treatment of postmenopausal vulvovaginal symptoms can be based on cost and patient formulation preference; vaginal estradiol tablets appear not to add benefit beyond vaginal gel or moisturizer. **Importance** Nearly half of postmenopausal women report bothersome vulvovaginal symptoms, but few data support the efficacy of 2 commonly recommended treatments. **Objective** To compare the efficacy of a low-dose vaginal estradiol tablet and a vaginal moisturizer, each vs placebo, for treatment of moderate-to-severe postmenopausal vulvovaginal symptoms. **Design, Setting, and Participants** This 12-week multicenter randomized clinical trial enrolled postmenopausal women with moderate to severe symptoms of vulvovaginal itching, pain, dryness, irritation, or pain with penetration. **Interventions** Vaginal 10- μ g estradiol tablet (daily for 2 weeks, then twice weekly) plus placebo gel (3 times a week) (n = 102) vs placebo tablet plus vaginal moisturizer (n = 100) vs dual placebo (n = 100). **Main Outcomes and Measures** The main outcome was decrease in severity (0-3) of most bothersome symptom (MBS) between enrollment and 12 weeks. Additional measures included a composite vaginal symptom score, Female Sexual Function Index (FSFI) score (2-36), modified Female Sexual Distress Score–Revised item 1, treatment satisfaction and meaningful benefit, Vaginal Maturation Index, and vaginal pH. **Results** The 302 women had a mean (SD) age of 61 (4) years and were primarily white (267 [88%]), college educated (200 [66%]), and sexually active (245 [81%]). Most women (294 [97%]) provided data for the primary analysis. The most commonly reported MBS was pain with vaginal penetration (182 [60%]), followed by vulvovaginal dryness (63 [21%]). Mean baseline MBS severity was similar between treatment groups: estradiol, 2.4 (95% CI, 2.3 to 2.6); moisturizer, 2.5 (95% CI, 2.3 to 2.6); placebo, 2.5 (95% CI, 2.4 to 2.6). All treatment groups had similar mean reductions in MBS severity over 12 weeks: estradiol, -1.4 (95% CI, -1.6 to -1.2); moisturizer, -1.2 (95% CI, -1.4 to -1.0); and placebo, -1.3 (95% CI, -1.5 to -1.1). No significant differences were seen between estradiol ($P = .25$) or moisturizer ($P = .31$) compared with placebo. Mean total FSFI improvement was similar between estradiol (5.4; 95% CI, 4.0 to 6.9) and placebo (4.5; 95% CI, 2.8 to 6.1) ($P = .64$), and between moisturizer (3.1; 95% CI, 1.7 to 4.5) and placebo ($P = .17$).

Conclusions and Relevance Our results suggest that neither prescribed vaginal estradiol tablet nor over-the-counter vaginal moisturizer provides additional benefit over placebo vaginal tablet and gel in reducing postmenopausal vulvovaginal symptoms.

8. VISCERA

Interval aerobic training the best

Sports Med. 2018 Mar 3. doi: 10.1007/s40279-018-0885-5.

Aerobic Interval vs. Continuous Training in Patients with Coronary Artery Disease or Heart Failure: An Updated Systematic Review and Meta-Analysis with a Focus on Secondary Outcomes.

Pattyn N^{1,2}, Beulque R³, Cornelissen V³.

BACKGROUND:

In a previous meta-analysis including nine trials comparing aerobic interval training with aerobic continuous training in patients with coronary artery disease, we found a significant difference in peak oxygen uptake favoring aerobic interval training.

OBJECTIVE:

The objective of this study was to (1) update the original meta-analysis focussing on peak oxygen uptake and (2) evaluate the effect on secondary outcomes.

METHODS:

We conducted a systematic review with a meta-analysis by searching PubMed and SPORTDiscus databases up to March 2017. We included randomized trials comparing aerobic interval training and aerobic continuous training in patients with coronary artery disease or chronic heart failure. The primary outcome was change in peak oxygen uptake. Secondary outcomes included cardiorespiratory parameters, cardiovascular risk factors, cardiac and vascular function, and quality of life.

RESULTS:

Twenty-four papers were identified (n = 1080; mean age 60.7 ± 10.7 years). Aerobic interval training resulted in a higher increase in peak oxygen uptake compared with aerobic continuous training in all patients (1.40 mL/kg/min; p < 0.001), and in the subgroups of patients with coronary artery disease (1.25 mL/kg/min; p = 0.001) and patients with chronic heart failure with reduced ejection fraction (1.46 mL/kg/min; p = 0.03). Moreover, a larger increase of the first ventilatory threshold and peak heart rate was observed after aerobic interval training in all patients. Other cardiorespiratory parameters, cardiovascular risk factors, and quality of life were equally affected.

CONCLUSION:

This meta-analysis adds further evidence to the clinically significant larger increase in peak oxygen uptake following aerobic interval training vs. aerobic continuous training in patients with coronary artery disease and chronic heart failure. More well-designed randomized controlled trials are needed to establish the safety of aerobic interval training and the sustainability of the training response over longer periods.

PMID:29502328DOI:10.1007/s40279-018-0885-5

Infant diet and Celiac's disease

Gastroenterology. 2018 Feb 23. pii: S0016-5085(18)30228-2. doi: 10.1053/j.gastro.2018.02.024.

Dietary Patterns After the Weaning and Lactation Period Associate with Celiac Disease Autoimmunity in Children.

Barroso M¹, Beth SA¹, Voortman T², Jaddoe VWV¹, van Zelm MC³, Moll HA⁴, Kiefte-de Jong JC⁵.

BACKGROUND & AIMS:

There have been many studies of associations between infant feeding practices and development of celiac disease during childhood, but few studies have focused on overall diets of young children following the weaning period. We aimed to examine the association between common dietary patterns in infants and the occurrence of celiac disease autoimmunity during childhood.

METHODS:

We performed a prospective analysis of data from the Generation R Study that comprised 1997 children born from April 2002 through January 2006 in Rotterdam, the Netherlands. Food consumption around 1 year of age was assessed with a validated food-frequency questionnaire. Dietary data were examined using a priori (based on existing guidelines) and a posteriori (Principal Component Analysis and Reduced Rank Regression) dietary pattern analyses. Five dietary patterns were compared. Celiac disease autoimmunity, determined based on serum concentration of transglutaminase-2 autoantibody (TG2A) below or above 7 U/mL, was evaluated at 6 years. Associations between dietary pattern adherence scores and celiac disease autoimmunity were examined using multivariable logistic regression models.

RESULTS:

Higher adherence to the a posteriori-derived prudent dietary pattern (high intake of vegetables, vegetable oils, pasta, and grains and low consumption of refined cereals and sweet beverages) at 1 year was significantly associated with lower odds of celiac disease autoimmunity at 6 years (odds ratio, 0.67; 95% CI, 0.54-0.84). No significant associations were found for other 4 dietary patterns.

CONCLUSIONS:

In a prospective study of dietary patterns of young children in the Netherlands, we associated a diet with high consumption of vegetables and grains, and low consumption of refined cereals and sweet beverages, with lower odds of celiac disease autoimmunity. Early-life dietary patterns might therefore be involved in the development of celiac disease during childhood.

10 A. CERVICAL SPINE

Neck pain and stress

Impact of Workplace Exposure and Stress on Neck Pain and Disabilities in Women—A Longitudinal Follow-up After a Rehabilitation Intervention

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Annals of Work Exposures and Health, wxy018, <https://doi.org/10.1093/annweh/wxy018>

Introduction

The aim was to evaluate if pain, disability, and work productivity are influenced by physical and psychosocial work exposures as well as by stress, up to 1 year after a randomized controlled trial treatment intervention, and to determine whether any such association differed between treatment and control groups.

Methods

Ninety-seven working women suffering non-specific neck pain ($n = 67$ treatment group, $n = 30$ control group) were followed from end of treatment intervention and at 9- and 15-month follow-ups, respectively. Physical and psychosocial exposures, as well as perceived stress, were assessed after the treatment intervention. Pain, neck disability, and work productivity were assessed at baseline, after intervention 3 months later and at 9- and 15-month follow-ups. Longitudinal assessment was conducted using the exposure level at 3 months as predictor of pain, disability, and work productivity at 3, 9, and 15 months, respectively. Mixed models were used to estimate longitudinal associations, accounting for within-individual correlation of repeated outcome measures by incorporation of a random intercept. Age and duration of neck pain were adjusted for in all models. To evaluate group differences, interactions between exposures and treatment groups were estimated.

Results

High perceived stress was associated with more neck pain, more neck disability, and decreased work productivity in both cross-sectional and longitudinal analyses. High ‘control of decision’ was associated with less neck pain, less neck disability, and higher work productivity in cross-sectional analyses but only to less disability and higher productivity in longitudinal analyses. Shoulder/arm load was the only physical exposure variable that was significantly associated with work productivity in the univariate analyses. Only small differences were observed between treatment and control groups.

Conclusion

High perceived stress and low ‘control of decision’ were associated with more neck pain, increased neck disability, and decreased work productivity. Treatment interventions for individuals with neck pain should take into account psychosocial workplace exposures and stress to improve intermediate and long-term results.

12 B. CERVICAL SURGERIES

Comparisons for stenosis

International Journal of Surgery

Clinical effectiveness of treatment of combined upper thoracic spinal stenosis and multilevel cervical spinal stenosis with different posterior decompression surgeries

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<https://doi.org/10.1016/j.ijssu.2018.02.060> Get rights and content

Highlights

The clinical effectiveness of treatment of combined upper thoracic spinal stenosis and multilevel cervical spinal stenosis with different posterior decompression surgeries was explored.

For patients with combined upper thoracic spinal stenosis and multilevel cervical spinal stenosis, both one-stage combined and two-staged posterior decompression surgeries are effective.

One-stage combined surgery is superior to two-staged surgery.

Objective

To explore the clinical effectiveness of various posterior decompression surgeries in the treatment of upper thoracic spinal stenosis combined with multilevel cervical spinal stenosis.

Methods

From January 2010 to December 2015, 22 consecutive patients with combined upper thoracic spinal stenosis and multilevel cervical spinal stenosis were treated with two different approaches of posterior decompression surgeries. In group A with 10 patients, both cervical and thoracic spinal decompression surgeries were performed simultaneously (one-stage surgery); in group B with 8 patients, cervical and thoracic spinal decompression surgeries were performed separately within three months (two-stage surgery). Based on Japanese Orthopedic Association (JOA) scores, improvement rate and extent of neurological function were calculated and the difference was compared between the two groups.

Results

There was no significant difference in demographic data between the two groups. However, compared with those of group B, both short-term and long-term improvement rate of neurological function in group A was higher ($P < 0.05$). In addition, the hospitalization cost was also lower in group A.

Conclusion

Both one-stage and two-stage posterior decompression surgeries were effective in treating patient with upper thoracic spinal stenosis combined with multilevel cervical spinal stenosis; however, one-stage combined surgery was superior to two-stage surgery.

13 C. AIRWAYS/SWALLOWING/SPEECH

Breath holding

Effects of repetitive prolonged breath-hold in elite divers on myocardial fibrosis and cerebral morphology

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DOI: <https://doi.org/10.1016/j.ejrad.2018.03.020>

Highlights

- Prolonged apnea performed by elite divers leads to relevant hypoxemia.
- Compensatory mechanisms burden the heart and the vascular system.
- No evidence of structural changes in the mid-term.
- Elite apnea divers are suitable to investigate acute but not chronic hypoxemic effects in vivo.

Background Prolonged apnea by breath-hold (BH) divers leads to hypoxemia and compensatory mechanisms of the cardiovascular system (i.e. increase of total peripheral resistance, increase of systolic blood-pressure, left-ventricular enlargement) to maintain oxygen supply to oxygen sensitive organs such as the brain. All these changes may result in structural myocardial or subclinical brain alterations. Therefore, the aim of this study was to investigate mid-term effects of repetitive prolonged apnea using cardiac magnetic resonance imaging (CMR) and magnetic resonance imaging of the brain.

Materials and methods 17 elite BH divers (15 males) were investigated at baseline, from whom 9 (7 males) were investigated again at follow-up one year later. CMR included functional imaging and tissue characterization using T1- and T2-mapping as well as late gadolinium enhancement.

Results were compared intra-individually and with 50 age matched controls.

Results Mean BH time were 297 ± 52 s (entire cohort) and 315 ± 56 s (sub-cohort) at initial, and 334 ± 104 s at follow-up examination. Apnea resulted in a progressive increase of the left ventricle and impaired function, which fully resolved after cessation of apnea. At rest, no dilation of the left ventricle was notable (LV-EDV: 106.7 ± 28.8 ml; LV-EDV/BSA: 52.2 ± 12.7 ml/m²). Compared to controls, the apnea group showed significantly lower volumes (LV-EDV: 106.7 ± 28.8 ml vs. 140.9 ± 36.3 ml, $p = 0.008$; LV-EDV/BSA: 52.2 ± 12.7 ml/m² vs. 73.7 ± 12.8 ml/m²). In contrast, LV-EF showed no significant differences between both groups ($61.0 \pm 7.0\%$ vs. $60.9 \pm 3.6\%$). T1- and T2-mapping revealed no significant differences, neither intra-individually nor in comparison with age matched controls. (T1 pre-contrast: 974.1 ± 12.9 ms vs. 969.4 ± 29.0 ms, $p = 0.2$; T1 post-contrast: 368.9 ± 38.5 ms vs. 966.7 ± 40.5 ms, $p = 0.4$; ECV: $29.2 \pm 1.5\%$ vs. $29.8 \pm 1.6\%$, $p = 0.3$; T2. 52 ± 2 ms vs. 52 ± 3 ms; $p = 0.4$). Except for one old embolic lesion no structural changes were found in brain imaging.

Conclusion

Although, prolonged apnea leads to impressive adaptations of the cardiovascular system (i.e. dilation of the left ventricle) and hypertension due to peripheral vasoconstriction no mid-term morphological changes could be observed in both, the myocardium and the brain. BH divers are suitable as a model to investigate acute physiological changes of prolonged apnea and hypoxemia, but not as a model for chronic alterations.

16. CONCUSSIONS

Types of dizziness

Musculoskelet Sci Pract. 2018 Apr;34:8-13. doi: 10.1016/j.msksp.2017.11.012. Epub 2017 Nov 26.

Physical examination of dizziness in athletes after a concussion: A descriptive study.

Reneker JC¹, Cheruvu VK², Yang J³, James MA², Cook CE⁴.

BACKGROUND:

Dizziness is commonly reported after concussion. With the forces experienced at the time of the injury, several anatomical locations may have been altered, causing dizziness.

OBJECTIVE:

Describe an objective examination and the types of impairment/dysfunction implicated by the results of clinical examination tests in subjects with dizziness after a concussion.

DESIGN:

Cross-Sectional.

METHODS:

Athletes between ages 10-23 were enrolled with a diagnosis of concussion. An examination was completed to identify areas potentially contributing to dizziness, including tests of oculomotor control, the vestibular system, neuromotor control, and musculoskeletal components of the cervical spine. Descriptive analyses were completed to define the anatomical areas/types of dysfunction identified by positive findings of the examination tests.

RESULTS:

All (n = 41; 100%) subjects had examination findings consistent with central dysfunction. Of these, 36 (97.8%) had oculomotor control deficits; 29 (70.7%) demonstrated motion sensitivity; and 6 (15%) had central vestibular deficits. Nineteen (46.3%) had peripheral dysfunction, including 18 (43.9%) with unilateral hypofunction, and 2 (4.9%) with Benign Paroxysmal Positional Vertigo. Thirty-four (82.9%) had cervical dysfunction, with 11 (26.8%) presenting with cervicogenic dizziness, and 31 (75.6%) with altered neuromotor control.

CONCLUSIONS:

Functional injury to centrally-mediated pathways, specifically oculomotor control, and afferent and efferent pathways in the cervical spine are commonly identified through clinical examination tests in individuals with a complaint of dizziness post-concussion. According to results presented here, a high majority (90%) of the participants demonstrated dizziness that appeared to be multifactorial in nature and was not attributable to one main type of dysfunction. The common pathways between the systems make it difficult to isolate only one anatomical area as a contributor to dizziness.

Blood markers**Blood biomarkers are associated with brain function and blood flow following sport concussion**

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Doug Richards Andrew J. Baker Michael G. Hutchison

DOI: <https://doi.org/10.1016/j.jneuroim.2018.03.002>

Highlights

Robust associations found between advanced fMRI and blood biomarkers following concussion.

Changes in cerebral blood flow were related to blood concentrations of PRDX-6 and T-Tau.

Altered functional connectivity was associated with blood levels of inflammatory chemokines.

Background

Secondary injury pathophysiology after sport-related concussion (SRC) is poorly understood. Blood biomarkers may be a useful tool for characterizing these processes, yet there are limitations in their application as a single modality. Combining blood biomarker analysis with advanced neuroimaging may help elucidate important secondary injury mechanisms and validate their continued utility in brain injury research. Hence, the purpose of this study was to evaluate co-modulation between peripheral blood biomarkers and advanced functional brain imaging after SRC.

Methods Forty-three university level athletes from 7 sports were recruited (16 recently concussed athletes; 15 healthy athletes with no prior history of concussion; 12 healthy athletes with a history of concussion). Seven blood biomarkers were evaluated: s100B, total tau (T-tau), von Willebrand factor (vWF), brain derived neurotrophic factor (BDNF), peroxiredoxin (PRDX)-6, monocyte chemoattractant protein (MCP)-1 and -4. Resting-state functional MRI was employed to assess global neural connectivity (Gconn), and arterial spin labelling was used to evaluate cerebral blood flow (CBF). We tested for concurrent alterations in blood biomarkers and MRI measures of brain function between athlete groups using a non-parametric, bootstrapped resampling framework.

Results

Compared to healthy athletes, recently concussed athletes showed greater concurrent alterations in several peripheral blood biomarker and MRI measures: a decrease in T-Tau and Gconn, a decrease in T-Tau and CBF, a decrease in Gconn with elevated PRDX-6, a decrease in CBF with elevated PRDX-6, and a decrease in Gconn with elevated MCP-4. In addition, compared to healthy athletes with no concussion history, healthy athletes with a history of concussion displayed greater concurrent alterations in blood biomarkers and Gconn; lower GConn covaried with higher blood levels of s100B and MCP-4.

Conclusion

We identified robust relationships between peripheral blood biomarkers and MRI measures in both recently concussed athletes and healthy athletes with a history of concussion. The results from this combinatorial approach further support that human concussion is associated with inflammation, oxidative stress, and cellular damage, and that physiological perturbations may extend chronically beyond recovery. Finally, our results support the continued implementation of blood biomarkers as a tool to investigate brain injury, particularly in a multimodal framework.

20 A. ROTATOR CUFF**Sleep quality****Sleep Quality in Patients With Rotator Cuff Disease**

Khazzam, Michael S. MD; Mulligan, Edward P. DPT, ATC; Brunette-Christiansen, Meredith DPT; Shirley, Zachary MD

JAAOS - Journal of the American Academy of Orthopaedic Surgeons: March 15, 2018 - Volume 26 - Issue 6 - p 215–222

doi: 10.5435/JAAOS-D-16-00547

Background: Little is known about the influence of rotator cuff pathology on sleep. The purpose of this study was to determine which patient-reported factors correlate with sleep disturbance in patients with rotator cuff disease.

Methods: A nonrandomized, cross-sectional cohort study was performed to evaluate the effects of rotator cuff disease on sleep quality. Data collected at time zero (before any treatment) included the Single Assessment Numeric Evaluation rating, the American Shoulder and Elbow Surgeons score, the Pittsburgh Sleep Quality Index, patient demographics, and medical comorbidities. Statistical analysis included the Pearson correlation and multiple regression analysis to determine which patient-reported factors were associated with sleep disturbance.

Results: Nocturnal pain was reported by 91% of the 391 participants (274 with tendinitis and 117 with rotator cuff tears). Participants had a mean age of 57 years. Pearson correlation coefficients determined that poor sleep quality in one group or both the tendinitis and the rotator cuff tear groups was associated with higher pain visual analog scale scores (0.27 and 0.31; $P = 0.004$ and $P < 0.0001$, respectively), depression (0.27 and 0.30; $P < 0.01$), female sex (0.24 and 0.27; $P < 0.001$), presence of low back pain (0.25 and 0.27; $P < 0.01$), diabetes mellitus (0.24 in the rotator cuff tear group; $P < 0.01$), and increased body mass index (0.22 and 0.27; $P = 0.02$).

Discussion: The status of the rotator cuff did not correlate with increasing symptoms of shoulder pain or with worse sleep quality as measured by the Pittsburgh Sleep Quality Index. These results support the theory that worsening symptoms of shoulder pain may not be clearly associated with rotator cuff disease severity.

Conclusion: Worse sleep quality scores in patients with rotator cuff disease are associated with pain, depression, female sex, low back pain, diabetes mellitus, and high body mass index. Overall, sleep quality did not differ among patients with varying rotator cuff disease severity. Only hypertension (in patients with rotator cuff tears) and concurrent cervical pathology (in patients with tendinitis) were uniquely related to the disease classification. Further investigation is needed to better define how these factors interact and influence nocturnal shoulder pain and sleep quality in patients with rotator cuff disease.

26. CARPAL TUNNEL SYNDROME**Male vs female****Observed Differences between Males and Females in Surgically Treated Carpal Tunnel Syndrome Among Non-manual Workers: A Sensitivity Analysis of Findings from a Large Population Study**

Andrea Farioli Stefania Curti Roberta Bonfiglioli Alberto Baldasseroni Giovanna Spatari Stefano Mattioli Francesco Saverio Violante

Annals of Work Exposures and Health, wxy015, <https://doi.org/10.1093/annweh/wxy015>

Objectives

We aimed at assessing whether differences among males and females in carpal tunnel syndrome (CTS) epidemiology might be attributable to segregation with respect to occupational biomechanical exposures or differential access to care by sex.

Methods

We analysed surgically treated cases of CTS occurring among non-manual workers in Tuscany between 1997 and 2000. We conducted a Monte Carlo simulation to estimate the difference in occupational biomechanical exposures between males and females necessary to explain the observed incidence rate ratios. We also accounted for the sex-specific probability of receiving surgery after the diagnosis of CTS, as women were reported to be more likely to undergo surgery in a subset of our study population. We quantified the hypothetical biomechanical overload through the hand activity level (HAL) metric proposed by the American Conference of Governmental Industrial Hygienists. To quantify the effect of HAL on CTS risk, we assumed a prior distribution based on findings from two large cohort studies of industrial workers.

Results

After adjustment for the probability of receiving surgery, women showed a 4-fold incidence of CTS as compared with men. To explain this association among non-manual workers, women should have an average value of HAL at least 5 points higher.

Conclusions

Our analysis does not support the hypothesis that the difference in CTS incidence between males and females is entirely attributable to occupational risk factors or to differential access to surgery. The causal pathway between sex and CTS might include more determinants such as hormonal factors, anthropometric characteristics, and non-occupational exposure to biomechanical overload (e.g. household tasks).

37. OSTEOARTHRITIS/KNEE

Weight loss

Obes Rev. 2014 Jul; 15(7): 578–586. Published online 2014 Apr 22. doi: 10.1111/obr.12173
PMCID: PMC4238740

Osteoarthritis, obesity and weight loss: evidence, hypotheses and horizons – a scoping review

H Bliddal,¹ A R Leeds,^{2,3,4} and R Christensen¹

Obesity is widely acknowledged as a risk factor for both the incidence and progression of osteoarthritis, and has a negative influence on outcomes.

Loss of at least 10% of body weight, coupled with exercise, is recognized as a cornerstone in the management of obese patients with osteoarthritis, and can lead to significant improvement in symptoms, pain relief, physical function and health-related quality of life. However, questions still remain surrounding optimal management. Given the significant health, social and economic burden of osteoarthritis, especially in obese patients, it is imperative to advance our knowledge of osteoarthritis and obesity, and apply this to improving care and outcomes.

This paper overviews what is already known about osteoarthritis and obesity, discusses current key challenges and ongoing hypotheses arising from research in these areas, and finally, postulates what the future may hold in terms of new horizons for obese patients with osteoarthritis.

Keywords: Obesity, osteoarthritis, treatment, weight loss

41 A. ACHILLES TENDON AND CALF**Comparisons of surgeries****Isokinetic functional outcomes of open versus percutaneous repair following Achilles tendon tears**

Daniel Baumfeld Tiago Baumfeld Filippo Spiezia Filippo Spiezia Spiezia Caio Nery ,
Nicola Maffulli

DOI: <https://doi.org/10.1016/j.fas.2018.03.003>

Highlights

- A retrospective comparative study, compares open and percutaneous techniques to manage Achilles Tendon ruptures.
- Functional assessment and Isokinetic testing has been also performed in patients.
- Open and percutaneous repair of a torn Achilles tendon produced similar functional outcomes.

Abstract**Purpose**

Rupture of the Achilles Tendon (AT) is frequent in young recreational athletes. Conservative management, open surgery and percutaneous/minimally invasive approaches are all advocated, and conflicting data are available. This study compared functional and anthropometric outcomes of patients who underwent open or percutaneous repair.

Methods

A retrospective comparative study, in which 38 patients underwent open and percutaneous techniques to manage AT ruptures. For functional assessment, the calf circumference of both injured and uninjured legs was evaluated. Isokinetic testing included total plantar flexion work, peak plantar flexion torque, total dorsiflexion work peak and dorsiflexion torque. The Achilles Tendon Rupture Score (ATRS) and the American Orthopedic Foot and Ankle Score (AOFAS) were evaluated at a final minimum follow-up of 12 months.

Results

No major complications were observed. The average time to return to sport was 9 months. AOFAS and ATRS values did not differ statistically between groups. Isokinetic variables and circumference were similar in the operated and non-operated limb in both groups, and did not differ either when comparing open and percutaneous repair.

Conclusions

Open and percutaneous repair of a torn Achilles tendon produced similar functional outcomes.

45 B. MANUAL THERAPY CERVICAL**Premanipulative position**

Musculoskelet Sci Pract. 2018 Apr;34:97-102. doi: 10.1016/j.msksp.2018.01.007. Epub 2018 Feb 6.

Morphometric changes of the cervical intervertebral foramen: A comparative analysis of pre-manipulative positioning and physiological axial rotation.

Dugailly PM¹, Beyer B², Salem W³, Feipel V².

BACKGROUND:

Cervical foraminal impingement has been described as a source of radicular pain. Clinical tests and head motions have been reported for affecting the intervertebral foramen (IVF) dimensions. Although manual approaches are proposed in the management of cervical radiculopathy, their influence on the foraminal dimensions remains unclear.

OBJECTIVES:

To investigate the influence of pre-manipulative positioning versus cervical axial rotation on the foraminal dimensions of the lower cervical spine.

METHODS:

Thirty asymptomatic volunteers underwent CT scan imaging in neutral position and axial rotation or pre-manipulative positioning. The manipulation task was performed at C4-C5 following a multiple components procedure. 3D kinematics and IVF (height, width and area) were computed for each cervical segment.

RESULTS:

The results showed that foraminal changes are dependent on motion types and cervical levels. With reference to head rotation, IVF opening occurred on the ipsilateral side during pre-manipulative positioning while axial rotation involved the contralateral side. Regardless of the side considered, magnitudes of opening were similar between both attitudes while narrowing was lower at the target and adjacent levels during the pre-manipulative positioning. Some associations between segmental motion and IVF changes were observed for the target level and the overlying level.

CONCLUSIONS:

The present study demonstrated that pre-manipulative positioning targeting C4-C5 modified IVF dimensions differently than the passive axial rotation. The findings suggest that techniques which incorporate combined movement positioning influence segmental motion and IVF dimensions differently at the target segment, compared to unconstrained rotation. Further investigations are needed to determine the clinical outcomes of such an approach.

48 B. TRIGGER POINTS NEEDLING/ACUPUNCTURE

Acupuncture

Different mechanisms of contralateral- or ipsilateral-acupuncture to modulate the brain activity in patients with unilateral chronic shoulder pain: A pilot fMRI study

Journal of Pain Research — | March 19, 2018

Zhang S, et al.

Researchers performed a comparison of the clinical effects between acupuncture at the contralateral and ipsilateral Tiaokou (ST 38) point in patients with unilateral shoulder pain. In addition, they explored how contralateral- and ipsilateral-acupuncture modulates the regional homogeneity (ReHo) of patients with chronic shoulder pain (CSP).

Results indicated that the stimulation given at contralateral and ipsilateral acupoints exhibit different clinical effects and brain mechanisms in patients with CSP. Anterior cingulate cortex (ACC) might play a direct role in the regulation of brain by the contralateral acupuncture at ST 38 in patients with shoulder pain. However, in the mechanism of acupuncture at ipsilateral ST 38, the pathway of brainstem-thalamus-cortex might be working.

52. EXERCISE**Exercise for pain**

Musculoskelet Sci Pract. 2018 Apr;34:89-96. doi: 10.1016/j.msksp.2018.01.006. Epub 2018 Jan 12.

Effect of physical exercise on musculoskeletal pain in multiple body regions among healthcare workers: Secondary analysis of a cluster randomized controlled trial.

Jakobsen MD¹, Sundstrup E², Brandt M³, Andersen LL³.

BACKGROUND:

While physical exercise is beneficial for back and neck-shoulder pain, only few intervention studies have evaluated effects on pain in multiple body regions. Furthermore, direct measurement of pain threshold can provide additional information to self-reported pain intensity.

OBJECTIVES:

To evaluate the effect of workplace versus home-based physical exercise on pressure pain threshold (PPT) and musculoskeletal pain intensity in multiple body regions.

STUDY DESIGN:

Secondary analysis of an examiner-blinded, cluster randomized controlled trial with allocation concealment.

METHOD:

Two-hundred female healthcare workers from 18 departments at three hospitals were cluster-randomized to 10 weeks of: 1) home-based physical exercise (HOME) performed alone during leisure time for 5 × 10 min per week or 2) workplace physical exercise (WORK) performed in groups during working hours for 5 × 10 min per week and up to 5 motivational coaching sessions. PPT (neck, lower back, lower leg) and perceived pain intensity in multiple body regions (feet, knee, hips, lower and upper back, elbow, hand, shoulder, neck, and head) were measured at baseline and 10-week follow-up.

RESULTS:

In some of the body regions, PPT and pain intensity improved more following WORK than HOME. Between-group differences at follow-up (WORK vs. HOME) were 41 kPa [95% CI 13-70, effect size (ES): 0.22] for PPT in the lower back, and -0.7 [95% CI -1.0-0.3, ES: 0.26] and -0.6 points [95% CI -0.9--0.2, ES: 0.23] for pain intensity in the lower back and feet, respectively. HOME did not improve more than WORK for any of the measurements.

CONCLUSION:

Physical exercise recommendations for healthcare workers should consider the setting, i.e. performing supervised group-based exercise at work and motivational coaching sessions is more effective than exercising alone at home.

54. POSTURE**Posture and diastasis**

Musculoskelet Sci Pract. 2018 Apr;34:1-7. doi: 10.1016/j.msksp.2017.11.010. Epub 2017 Nov 22.

Effects of posture and anatomical location on inter-recti distance measured using ultrasound imaging in parous women.

Gillard S¹, Ryan CG², Stokes M³, Warner M³, Dixon J².

STUDY DESIGN:

Cross-sectional repeated measures.

OBJECTIVES:

To quantify the effects of posture and measurement site on the inter-recti distance (IRD) and investigate the reliability of IRD measurement using ultrasound imaging in different postures.

BACKGROUND:

The linea alba connects the rectus abdominis muscles anteriorly and the width is known as the IRD. The IRD is usually measured in crook-lying and is the primary outcome measure to assess for a divarication of recti abdominis (DRA). The effects of posture and measurement site on the IRD have not been investigated.

METHODS:

Ultrasound imaging was used to measure IRD in 41 women ≥ 8 weeks postpartum. The IRD was measured at three sites (superior-umbilicus, umbilicus and inferior-umbilicus), in three postures (crook-lying, sitting and standing), and repeated one-week later. The effects of posture and site were investigated using one-way ANOVAs. Reliability was analysed using Intraclass correlation coefficients (ICCs), Bland Altman analyses, standard error of measurement and minimal detectable change.

RESULTS:

The IRD was wider when standing vs. lying at both the superior-umbilicus and umbilicus by 0.30 cm (95% CI 0.21 to 0.39) and 0.20 cm (0.11-0.30) respectively ($p < 0.001$). Measurements at the inferior-umbilicus were, on average, 1.6 and 2.1 cm narrower than superior-umbilicus and umbilicus sites, respectively ($p < 0.001$). There was high intra-rater reliability within-session (ICC_{3,3}) and between-session (ICC_{3,1}) at all sites measured.

CONCLUSION:

The IRD can be measured reliably at all sites and postures. The IRD is wider at superior-umbilicus and umbilicus when upright compared with lying. There is a difference in IRD between all sites measured.

59. PAIN**Meditation helps**

Clin J Pain. 2018 Apr;34(4):357-365. doi: 10.1097/AJP.0000000000000550.

Medicate or Meditate? Greater Pain Acceptance is Related to Lower Pain Medication Use in Persons With Chronic Pain and Spinal Cord Injury.

Kratz AL¹, F Murphy J 3rd, Kalpakjian CZ, Chen P.

OBJECTIVES:

There is little information about whether use of pain self-management skills that are common targets of psychosocial interventions for pain are associated with reduced reliance on pain medications. The aim of this study was to test whether higher chronic pain acceptance, which is a readily modified pain self-management approach, is related to lower use of pain medications (eg, opioid medications, and gabapentinoids) in a sample with chronic pain and spinal cord injury (SCI).

MATERIALS AND METHODS:

This is a cross-sectional survey study of pain medication use, pain severity and distribution (Brief Pain Inventory [BPI]), depressive symptoms (Patient Health Questionnaire-9 [PHQ-9]), and chronic pain acceptance (Chronic Pain Acceptance Questionnaire [CPAQ]) administered to a sample of 120 adults with chronic pain and SCI.

RESULTS:

Regression results indicated that, above and beyond the effects of pain intensity, pain distribution, and depressive symptoms, higher pain acceptance was related to lower use of all types of pain medications, and lower odds of using opioid medications or gabapentinoids. Pain intensity was not related to pain medication use, but greater pain distribution was related to using more pain medications in general and to greater odds of using gabapentinoids.

DISCUSSION:

Findings from this study indicate that those with chronic pain and SCI who have a more accepting orientation to pain are less reliant on pain medications, and thereby experience lower risks associated with medication consumption. Longitudinal, daily process, and clinical trial studies are needed to better understand the association between pain acceptance and pain medication consumption.

PMID: 28877136 DOI: 10.1097/AJP.0000000000000550

61. FIBROMYALGIA

Tai Chi

Research

Effect of tai chi versus aerobic exercise for fibromyalgia: comparative effectiveness randomized controlled trial

BMJ 2018; 360 doi: <https://doi.org/10.1136/bmj.k851>

Chenchen Wang, , Timothy McAlindon,

Abstract

Objectives To determine the effectiveness of tai chi interventions compared with aerobic exercise, a current core standard treatment in patients with fibromyalgia, and to test whether the effectiveness of tai chi depends on its dosage or duration.

Design Prospective, randomized, 52 week, single blind comparative effectiveness trial.

Setting Urban tertiary care academic hospital in the United States between March 2012 and September 2016.

Participants 226 adults with fibromyalgia (as defined by the American College of Rheumatology 1990 and 2010 criteria) were included in the intention to treat analyses: 151 were assigned to one of four tai chi groups and 75 to an aerobic exercise group.

Interventions Participants were randomly assigned to either supervised aerobic exercise (24 weeks, twice weekly) or one of four classic Yang style supervised tai chi interventions (12 or 24 weeks, once or twice weekly). Participants were followed for 52 weeks. Adherence was rigorously encouraged in person and by telephone.

Main outcome measures The primary outcome was change in the revised fibromyalgia impact questionnaire (FIQR) scores at 24 weeks compared with baseline. Secondary outcomes included changes of scores in patient's global assessment, anxiety, depression, self efficacy, coping strategies, physical functional performance, functional limitation, sleep, and health related quality of life.

Results FIQR scores improved in all five treatment groups, but the combined tai chi groups improved statistically significantly more than the aerobic exercise group in FIQR scores at 24 weeks (difference between groups=5.5 points, 95% confidence interval 0.6 to 10.4, P=0.03) and several secondary outcomes (patient's global assessment=0.9 points, 0.3 to 1.4, P=0.005; anxiety=1.2 points, 0.3 to 2.1, P=0.006; self efficacy=1.0 points, 0.5 to 1.6, P=0.0004; and coping strategies, 2.6 points, 0.8 to 4.3, P=0.005). Tai chi treatment compared with aerobic exercise administered with the same intensity and duration (24 weeks, twice weekly) had greater benefit (between group difference in FIQR scores=16.2 points, 8.7 to 23.6, P<0.001). The groups who received tai chi for 24 weeks showed greater improvements than those who received it for 12 weeks (difference in FIQR scores=9.6 points, 2.6 to 16.6, P=0.007). There was no significant increase in benefit for groups who received tai chi twice weekly compared with once weekly. Participants attended the tai chi training sessions more often than participants attended aerobic exercise. The effects of tai chi were consistent across all instructors. No serious adverse events related to the interventions were reported.

Conclusion Tai chi mind-body treatment results in similar or greater improvement in symptoms than aerobic exercise, the current most commonly prescribed non-drug treatment, for a variety of outcomes for patients with fibromyalgia. Longer duration of tai chi showed greater improvement. This mind-body approach may be considered a therapeutic option in the multidisciplinary management of fibromyalgia.

Trial registration [ClinicalTrials.gov](https://clinicaltrials.gov) NCT01420640.

62 A. NUTRITION/VITAMINS**Epilepsy and keto diet****A pragmatic study on efficacy, tolerability and long term acceptance of ketogenic diet therapy in 74 South Indian children with pharmaco-resistant epilepsy**

<https://doi.org/10.1016/j.seizure.2018.03.020> Get rights and content

Highlights

- Ketogenic diet(KD) is an established therapeutic option for resistant epilepsies.
 - Integration of KD to local dietary practices may at times be very challenging.
 - KD can be effectively implemented in carbohydrate rich south Indian diet.

Abstract**Purpose**

Significant challenges exist for Ketogenic Diet (KD) programs in many populations, mainly due to the variations in local dietary preferences. Here we report a single center experience of KD therapy in a cohort of South Indian children with pharmaco-resistant epilepsies

Methods

Children aged 0-18 years, enrolled in the KD program for pharmaco-resistant epilepsies of Amrita institute of Medical Sciences, Kochi, Kerala, India (2010 – 2015) were included in this pragmatic study. Diet efficacy was evaluated according to reduction in seizure frequency and in the number of antiepileptic drugs (AED). Duration of retention, reasons for discontinuation and the rate of adverse events were used for assessing KD tolerability

Results

74 children were enrolled in the KD program. Four children could not complete the initiation process. Median age at KD initiation was 4.2years. 53 children reported developmental delay. 89% were on 3 or more AEDs. Baseline seizure frequency was >5/day in 54 children. KD was continued for a median duration of 10.43 months. At the last contact, 59.4% reported seizure reduction of more than 50%. More than 90% reduction was noted in 25 children (33.7%) and 6(8.1%) of them became seizure free. Four children expired during the study period and four children reported major adverse events necessitating KD withdrawal. Main reasons for discontinuation of KD were poor compliance, lack of response to diet and relapse of seizures.

Conclusion

KD may be a safe and effective option for children with pharmaco-resistant epilepsies even while on a traditional carbohydrate rich South Indian diet.

Med Diet

Eur J Nutr. 2018 Apr;57(3):1225-1235. doi: 10.1007/s00394-017-1405-3. Epub 2017 Mar 10.

Prospective association between adherence to the Mediterranean diet and risk of depressive symptoms in the French SU.VI.MAX cohort.

Adjibade M¹, Assmann KE², Andreeva VA², Lemogne C^{3,4,5}, Hercberg S^{2,6}, Galan P², Kesse-Guyot E².

PURPOSE:

This study examines whether adherence to the Mediterranean Diet (MD) measured by several dietary indexes was associated with incident depressive symptoms in a large French cohort.

METHODS:

The study sample consisted of 3523 participants from the Supplémentation en Vitamines et Minéraux Antioxydants (SU.VI.MAX) cohort who had at least three dietary records at baseline during the first 2 years of follow-up (1994-1996), free of depression at the beginning of the study (1996-1997) and available Center for Epidemiologic Studies Depression Scale (CES-D) data at the end of follow-up (2007-2009). The rMED was computed. Incident depressive symptoms were defined by a CES-D score ≥ 17 for men and ≥ 23 for women in 2007-2009. Odds ratios (OR) and 95% confidence intervals (95% CI) were estimated using multivariable logistic regression models. Several sensitivity analyses were performed.

RESULTS:

In the present study, 172 incident cases of depressive symptoms were identified during the follow-up (mean = 12.6 years). After adjustment for a wide range of potential confounders, adherence to the rMED score (continuous variable) was significantly associated with incident depressive symptoms in men (OR 0.91; 95% CI 0.83-0.99; $p = 0.03$), but not in women. Use of the Literature-Based Adherence Score to the Mediterranean Diet (LAMMD) and the classic MD score (MDS) provide similar findings.

CONCLUSIONS:

In the current study, higher adherence to the Mediterranean Diet at midlife was associated with a lower risk of incident depressive symptoms, particularly in men, increasing scientific evidence for a beneficial role of Mediterranean Diet on health. Further investigations in particular among women are needed.

63. PHARMACOLOGY**Fluoroquinolone use and aortic aneurysm**

BMJ. 2018 Mar 8;360:k678. doi: 10.1136/bmj.k678.

Fluoroquinolone use and risk of aortic aneurysm and dissection: nationwide cohort study.

Pasternak B^{1,2}, Inghammar M^{2,3}, Svanström H².

OBJECTIVE:

To investigate whether oral fluoroquinolone use is associated with an increased risk of aortic aneurysm or dissection.

DESIGN:

Nationwide historical cohort study using linked register data on patient characteristics, filled prescriptions, and cases of aortic aneurysm or dissection.

SETTING:

Sweden, July 2006 to December 2013.

PARTICIPANTS:

360 088 treatment episodes of fluoroquinolone use (78% ciprofloxacin) and propensity score matched comparator episodes of amoxicillin use (n=360 088).

MAIN OUTCOME MEASURES:

Cox regression was used to estimate hazard ratios for a first diagnosis of aortic aneurysm or dissection, defined as admission to hospital or emergency department for, or death due to, aortic aneurysm or dissection, within 60 days from start of treatment.

RESULTS:

Within the 60 day risk period, the rate of aortic aneurysm or dissection was 1.2 cases per 1000 person years among fluoroquinolone users and 0.7 cases per 1000 person years among amoxicillin users. Fluoroquinolone use was associated with an increased risk of aortic aneurysm or dissection (hazard ratio 1.66 (95% confidence interval 1.12 to 2.46)), with an estimated absolute difference of 82 (95% confidence interval 15 to 181) cases of aortic aneurysm or dissection by 60 days per 1 million treatment episodes. In a secondary analysis, the hazard ratio for the association with fluoroquinolone use was 1.90 (1.22 to 2.96) for aortic aneurysm and 0.93 (0.38 to 2.29) for aortic dissection.

CONCLUSIONS:

In a propensity score matched cohort, fluoroquinolone use was associated with an increased risk of aortic aneurysm or dissection. This association appeared to be largely driven by aortic aneurysm.