

5. SPINAL SURGERY

Discectomy helps leg pain

Clinical course of pain and disability following primary lumbar discectomy: systematic review and meta-analysis

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Purpose

To conduct a meta-analysis to describe clinical course of pain and disability in adult patients post-lumbar discectomy (PROSPERO: CRD42015020806).

Methods

Sensitive topic-based search strategy designed for individual databases was conducted. Patients (> 16 years) following first-time lumbar discectomy for sciatica/radiculopathy with no complications, investigated in inception (point of surgery) prospective cohort studies, were included. Studies including revision surgery or not published in English were excluded. Two reviewers independently searched information sources, assessed eligibility at title/abstract and full-text stages, extracted data, assessed risk of bias (modified QUIPs) and assessed GRADE. Authors were contacted to request raw data where data/variance data were missing. Meta-analyses evaluated outcomes at all available time points using the variance-weighted mean in random-effect meta-analyses. Means and 95% CIs were plotted over time for measurements reported on outcomes of leg pain, back pain and disability.

Results

A total of 87 studies ($n = 31,034$) at risk of bias (49 moderate, 38 high) were included. Clinically relevant improvements immediately following surgery (> MCID) for leg pain (0–10, mean before surgery 7.04, 50 studies, $n = 14,910$ participants) and disability were identified (0–100, mean before surgery 53.33, 48 studies, $n = 15,037$). Back pain also improved (0–10, mean before surgery 4.72, 53 studies, $n = 14,877$). Improvement in all outcomes was maintained (to 7 years). Meta-regression analyses to assess the relationship between outcome data and a priori potential covariates found preoperative back pain and disability predictive for outcome.

Conclusion

Moderate-level evidence supports clinically relevant immediate improvement in leg pain and disability following lumbar discectomy with accompanying improvements in back pain.

6. PELVIC GIRDLE

Myofascial care for chronic pelvic pain

How Does Myofascial Physical Therapy Attenuate Pain in Chronic Pelvic Pain Syndrome?

Keren Grinberg, Irit Weissman-Fogel, [...], and Michal Granot

Background

Chronic pelvic pain syndrome (CPPS) is a multifactorial disorder comprising structural and functional muscular abnormalities, a dysfunctional pain system, and psychological distress. Myofascial physical Therapy (MPT) that is targeted at improving pelvic muscle functioning is considered a first line nonpharmacological treatment for CPPS, although the precise mechanisms that lead to symptoms alleviation have not yet been elucidated.

Purpose

This longitudinal study aimed to examine the local and systemic effects of MPT intervention, including biopsychophysiological processes, among CPPS patients.

Methods

The study included 50 CPPS women. Morphologic assessment of the levator ani and quantitative sensory testing of the pain system were applied alongside with evaluation of pain-related psychological factors using designated questionnaires. All measures were evaluated both before and after MPT in 39 patients. The long-term effects of MPT were evaluated by clinical pain reports obtained at 3 and 9 months following MPT that were compared with a nontreated group of 11 untreated CPPS women.

Results

Along with an improvement in the clinical pain intensity ($p = 0.001$) and sensitivity to experimental pain tests ($p = 0.001$) following MPT, the results also indicate that MPT has anatomical, psychological, and social therapeutic effects ($p = 0.04$; $p = 0.001$; $p = 0.01$, respectively).

Furthermore, clinical pain evaluation at 3 and 9 months after MPT revealed a significant improvement in women who received treatment ($p = 0.001$).

Conclusions

The findings of this pilot study suggest multisystemic (direct and indirect anatomical, neurophysiological, and psychological) effects of MPT on the multifactorial pain disorder of CPPS and therefore place MPT as a mechanism-based intervention.

7. PELVIC ORGANS/WOMAN'S HEALTH

Pelvic girdle pain post-partum

Subjective recovery from pregnancy-related pelvic girdle pain the first 6 weeks after delivery: a prospective longitudinal cohort study

Anne Marie Gausel, Stefan Malmqvist, Knut Andersen, Inger Kjærmann, Jan Petter Larsen, Ingvild Dalen & Inger Økland

European Spine Journal (2020)Cite this article

Purpose

The purpose of this study was to investigate the subjective recovery from pregnancy-related pelvic girdle pain (PGP) during the first 6 weeks after delivery and to detect possible risk factors for a poor recovery.

Methods

The participants were included in this study at the routine ultrasound examination at 18 weeks of pregnancy. The women received a weekly SMS with the question “How many days during the last week has your PGP been bothersome?” The SMS-track from the final 10 weeks of pregnancy and first 6 weeks after delivery were assessed and sorted, based on individual graphs. A total of 130 women who reported PGP during pregnancy and met for clinical examination 6 weeks after delivery were included in the study.

Results

In all, 83% of the women experienced substantial recovery from severe or moderate PGP within 6 weeks after delivery. Of these, 44% reported a substantial recovery already within 2 weeks after delivery. More multiparous women, women reporting PGP the year before pregnancy, and women with high pain intensity during pregnancy had a poor recovery.

Conclusions

The prognosis following PGP in pregnancy is good and the majority of women recovered substantially from severe and moderate pregnancy-related PGP within 6 weeks after delivery. For many women, a subjective substantial recovery occurred within 2 weeks after delivery. Predictors for a poor recovery were multiparity, PGP the year before pregnancy and a high pain intensity during pregnancy.

Breastfeeding and fx risk

Osteoporos Int. 2017 Feb;28(2):495-503. doi: 10.1007/s00198-016-3753-x. Epub 2016 Aug 30.

A meta-analysis of breastfeeding and osteoporotic fracture risk in the females.

Duan X¹, Wang J¹, Jiang X^{2,3}.

Our meta-analysis included 12 studies from PubMed, Embase, and Web of Science. Finding indicated breastfeeding may well reduce the risk of osteoporotic fracture.

INTRODUCTION:

Several epidemiologic studies have investigated that breastfeeding is associated with short-term bone loss in the women, but the long-term effect on osteoporotic fracture risk remains unclear. Thus, we conducted this meta-analysis to explore the potential association between breastfeeding and osteoporotic fracture risk in the females and possible dose-response relationship between them.

METHODS:

We searched PubMed, Embase, and Web of Science (ISI) up to April 2016 for relevant articles associated between breastfeeding and osteoporotic fracture. Pooled relative risks (RRs) with 95 % confidence intervals (CIs) were calculated with a random-effects model. Dose-response analysis was performed by restricted cubic spline.

RESULTS:

Twelve articles including 14,954 participants were identified. The pooled RRs of osteoporotic hip and forearm fracture for the highest vs lowest duration of breastfeeding were 0.84 (95 % CI 0.67-1.05), 0.72 (95 % CI 0.52-0.99), and 0.82 (95 % CI 0.56-1.19), respectively. In subgroup analysis, breastfeeding was associated with a decreased risk of osteoporotic fracture in case-control study (RR = 0.70, 95 % CI 0.49-0.99) and postmenopausal women (RR = 0.66, 95 % CI 0.47-0.93). In dose-response analysis, osteoporotic and hip fracture risk decreased by 0.9 and 1.2 % for each month increment of breastfeeding, respectively.

CONCLUSIONS:

Our meta-analysis revealed that breastfeeding may well reduce the risk of osteoporotic fracture. More cohort studies with large sample sizes are needed to confirm the conclusion.

Breastfeeding reduces risk of Fx**Association between breastfeeding and osteoporotic hip fracture in women: a dose-response meta-analysis**

Haixiang Xiao, Quan Zhou, Gouqi Niu, Guansheng Han, Zhongchuan Zhang, Qingbo Zhang, Jianzhong Bai & Xunbing Zhu

Journal of Orthopaedic Surgery and Research volume 15,

Objective

Approximately 300 mg of calcium a day is provided into infants to maintain the physical development of infants, and 5 to 10% bone loss occurs in women during breastfeeding. Hip fractures are considered the most serious type of osteoporotic fracture. We performed this meta-analysis to investigate the association between breastfeeding and osteoporotic hip fractures.

Material and methods

PubMed and Embase were searched until May 1, 2019, for studies evaluating the relationship between breastfeeding and osteoporotic hip fracture in women. The quality of the included studies was evaluated by the methodological index for non-randomized studies (MINORS). For the dose-response meta-analysis, we used the “generalized least squares for trend estimation” method proposed by Greenland and Longnecker to take into account the correlation with the log RR estimates across the duration of breastfeeding.

Results

Seven studies were moderate or high quality, enrolling a total of 103,898 subjects. The pooled outcomes suggested that breastfeeding can decrease the incidence of osteoporotic hip fracture (RR = 0.64 (95% CI 0.43, 0.95), $P = 0.027$). Dose-response analysis demonstrated that the incidence of osteoporotic hip fracture decreased with the increase of breastfeeding time. The RR and 95% CI for 3 months, 6 months, 12 months, and 24 months were RR = 0.93, 95% CI 0.88, 0.98; RR = 0.87, 95% CI 0.79, 0.96; RR = 0.79, 95% CI 0.67, 0.92; and RR = 0.76, 95% CI 0.59, 0.98, respectively, whereas no significant relationship was found between them when the duration of breastfeeding time was more than 25 months.

Conclusions

Our meta-analysis demonstrated that the incidence of osteoporotic hip fracture decreased with the extension of breastfeeding time. However, there is no significant relationship between them when the duration of breastfeeding time was more than 25 months.

Breastfeeding in bed**Bedsharing and Breastfeeding: The Academy of Breastfeeding Medicine Protocol #6, Revision 2019**

Peter S. Blair Helen L. Ball James J. McKenna Lori Feldman-Winter ,
Kathleen A. Marinelli Melissa C. Bartick

Published Online: 14 Jan 2020 <https://doi.org/10.1089/bfm.2019.29144.psb>

Purpose

Bedsharing promotes breastfeeding initiation,¹ duration,²⁻⁷ and exclusivity.^{7,8} Medical and public health organizations in some countries recommend against bedsharing, citing concerns over increased risk of sleep-related infant death.^{9,10} However, bedsharing may only be a risk in hazardous circumstances as demonstrated by epidemiological study (Table 1).¹¹ We aim to clarify the currently available evidence regarding the benefits and risks of bedsharing, and offer evidence-based recommendations that promote infant and maternal health through increased breastfeeding duration.¹² The recommendations in this protocol apply to mother–infant dyads who have initiated breastfeeding and are in home settings, and are not intended for use in hospitals or birth centers.

Summary

Levels of evidence (1–5) from the Oxford Centre for Evidence Based Medicine¹³ are listed in parentheses, and are based on the citations are described below in the supporting material. See the supporting material for the ways in which we define “bedsharing,” “SIDS,” and “separate sleep” for purposes of this protocol. “Breastsleeping” is defined there as well.

Overall, the research conducted to date on bedsharing and breastfeeding indicates that nighttime proximity facilitates breastfeeding duration and exclusivity (levels 2–3).^{2,4,14} Discussions about safe bedsharing should be incorporated into guidelines for pregnancy and postnatal care.¹⁵⁻¹⁹ Existing evidence does not support the conclusion that bedsharing among breastfeeding infants (i.e., breastsleeping) causes sudden infant death syndrome (SIDS) in the absence of known hazards (level 3) (see Table 1).¹¹ Larger studies with appropriate controls are needed to understand the relationship between bedsharing and infant deaths in the absence of known hazards at different ages. Not all hazards are individually modifiable after birth (e.g., prematurity). Accidental suffocation death is extremely rare among bedsharing breastfeeding infants in the absence of hazardous circumstances (levels 2–3),²⁰ and must be weighed against the consequences of separate sleep. There are consequences to breastfeeding with separate sleep (even with room-sharing) that include the risk of early weaning, the risk of compromise to milk supply from less frequent nighttime breastfeeding, and unintentional bedsharing (levels 1–3).^{5,21,22} Recommendations concerning bedsharing must take into account the mother's knowledge, beliefs, and preferences and acknowledge the known benefits as well as the risks (level 5).^{23,24}

Breast CA factors

Diet-related metabolomic signature of long-term breast cancer risk using penalized regression: An exploratory study in the SU.VI.MAX cohort

Cancer Epidemiology, Biomarkers & Prevention —

Lécuyer L, Dalle C, Lefevre-Arbogast S, et al. | January 10, 2020

In an exploratory study, researchers investigated diet-associated metabolites distinguishing women at higher risk of breast cancer via utilizing untargeted metabolomics.

From a nested case-control study within the Supplémentation en Vitamines et Minéraux Antioxydants cohort, they analyzed baseline plasma samples from 200 patients with incident breast cancer and matched controls using untargeted LC-MS. They selected 595 ions as candidate diet-related metabolites, and identified a diet-related plasma metabolic signature including exogenous, steroid metabolites, and microbiota-related compounds linked with long-term breast cancer risk.

Plasma samples from women who subsequently suffered breast cancer exhibited a lower level of piperine (a compound from pepper) and higher levels of acetyltributylcitrate (an alternative plasticizer to phthalates), pregnene-triol sulfate (a steroid sulfate), and 2-amino-4-cyano butanoic acid (a metabolite linked to microbiota metabolism).

13 B. TMJ/ORAL**High velocity in TMJ care**

J Orthop Sports Phys Ther. 2020 Jan 6:1-40. doi: 10.2519/jospt.2020.9175.

Effectiveness of Cervical Spine High Velocity Low Amplitude Thrust Added to Behavioral Education, Soft Tissue Mobilization, and Exercise in Individuals With Temporomandibular Disorder (TMD) With Myalgia: A Randomized Clinical Trial.

Reynolds B¹, Puentedura EJ², Kolber MJ³, Cleland JA⁴.

STUDY DESIGN:

Randomized clinical trial.

OBJECTIVES:

To determine the immediate and short-term effects of cervical spine high velocity low amplitude thrust (HVLAT) added to behavioral education, soft tissue mobilization, and a home exercise program (HEP) on reducing pain and dysfunction in individuals with a primary complaint of temporomandibular disorder (TMD) with myalgia.

BACKGROUND:

TMD is a common and costly problem often leading to chronic pain. There is moderate evidence for physical therapy intervention in the management of TMD. A known relationship between TMD and the cervical spine exists, however, studies examining the efficacy of cervical interventions in this population are limited.

METHODS:

Fifty individuals with TMD (n=50) were randomly assigned to receive cervical HVLAT or sham manipulation for four visits over 4-weeks. Participants in both groups received other treatments including standardized behavioral education, soft tissue mobilization, and a HEP. Primary outcomes included maximal mouth opening (MMO), Numeric Pain Rating Scale (NPRS), Jaw Functional Limitation Scale (JFLS), Tampa Scale of Kinesiophobia (TSK-TMD), and Global Rating of Change (GROC). Self-report and objective measurements were taken at baseline, immediately after initial treatment, 1-week, and 4-weeks. A 2 x 4 mixed model ANOVA was used with intervention group as the between-subjects factor and time as the within-subjects factor. Separate ANOVAs were performed for dependent variables and the hypothesis of interest was the group by time interaction.

RESULTS:

There was no significant interaction for MMO, NPRS, or secondary measures. Significant 2-way interactions were noted in JFLS (d=0.60) and TSK-TMD (d=0.80). The HVLAT group had lower fear at 4-weeks and improved jaw function earlier (1-week). GROC favored the HVLAT group with significant differences in successful outcomes noted immediately after baseline treatment (thrust:6/25; sham:0/25) and at 4-weeks (thrust:17/25; sham:10/25).

CONCLUSION:

Both groups improved over time, however, differences between groups were small. Significant differences between groups were noted for JFLS, TSK-TMD, and GROC. The additive clinical effect of cervical HVLAT to standard care remains unclear in the treatment of TMD.

Determining minimal clinical difference

What is the minimal important difference of pain intensity, mandibular function, and headache impact in patients with temporomandibular disorders? Clinical significance analysis of a randomized controlled trial

Leticia Bojikian Calixtre^{a,*}, Ana Beatriz Oliveira^a, Francisco Albuquerque-Sendín^b, Susan Armijo Olivo^c

Highlights

- The MCID for important outcomes related to TMD were provided.
- The MCID values can be used in both clinical practice and future research.
- Pain and headache impact are the most predictive outcomes for females with TMD.
- Future studies should continue applying VAS and HIT-6.
- Clinicians should apply VAS and HIT-6 to verify the effects of their intervention.

Background

There are insufficient studies providing Minimal Clinical Important Difference (MCID) for outcomes related to temporomandibular disorders (TMD).

Objectives

(1) To provide the MCID of outcomes related to TMD using the Global Rating of Change Scale (GRCS) as an anchor. (2) To verify which outcomes can predict a moderate or large response to the treatment.

Study design

Secondary analysis of a randomized controlled trial in subjects with TMD.

Methods

Sixty-one women with TMD were divided into intervention and control groups. Visual Analogue Scale (VAS), Headache Impact Test (HIT-6), pressure pain thresholds (PPTs) of masticatory muscles, Mandibular Function Impairment Questionnaire (MFIQ), and Craniocervical Flexion Test (CCFT) were collected at baseline and 5-weeks follow-up.

Results

Participants were divided based on their response to the treatment, according to the GRCS. MCID values were provided for subjects that moderately or largely improved to the treatment. MCID was between 0 and 1.90 for orofacial pain, around 2 points for the MFIQ, between 3 and 6.26 points for the HIT-6, around 0.2 kg/cm² for the PPTs on masticatory muscles, around 2.5 mm for MMO and between 60 and 68 points for CCFT. Orofacial pain and HIT-6 were the most discriminative variables at determining whether patients would largely/moderately improve or would not improve after treatment.

Conclusions

The values of MCID could be used as guidance for both clinical practice and research. Pain intensity and headache impact were the most predictive outcomes for improvement of the general health status of women with TMD.

13 D. SLEEP

SA and genetics

J Sleep Res. 2020 Jan 6:e12979. doi: 10.1111/jsr.12979.

Obstructive sleep apnea and hypertriglyceridaemia share common genetic background: Results of a twin study.

Meszaros M¹, Tarnoki AD², Tarnoki DL², Kovacs DT², Forgo B², Lee J³, Sung J³, Vestbo J^{4,5}, Müller V¹, Kunos L¹, Bikov A^{1,4,5}.

obstructive sleep apnea is associated with an increased risk of hypertension, diabetes and dyslipidaemia.

Both obstructive sleep apnea and its comorbidities are at least partly heritable, suggesting a common genetic background. Our aim was to analyse the heritability of the relationship between obstructive sleep apnea and its comorbidities using a twin study.

Forty-seven monozygotic and 22 dizygotic adult twin pairs recruited from the Hungarian Twin Registry (mean age 51 ± 15 years) attended an overnight diagnostic sleep study. A medical history was taken, blood pressure was measured, and blood samples were taken for fasting glucose, total cholesterol, triglyceride, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol and lipoprotein (a). To evaluate the heritability of obstructive sleep apnea and its comorbidities bivariate analysis was performed with an adjustment for age, gender, body mass index (BMI) and smoking after false discovery rate correction and following exclusion of patients on lipid-lowering and antidiabetic medications. There was a significant correlation between indices of obstructive sleep apnea severity, such as the apnea-hypopnea index, oxygen desaturation index and percentage of sleep time spent with oxygen saturation below 90%, as well as blood pressure, serum triglyceride, lipoprotein (a) and glucose levels (all $p < .05$). The bivariate analysis revealed a common genetic background for the correlations between serum triglyceride and the oxygen desaturation index ($r = .63$, $p = .03$), as well as percentage of sleep time spent with oxygen saturation below 90% ($r = .58$, $p = .03$). None of the other correlations were significantly genetically or environmentally determined.

This twin study demonstrates that the co-occurrence of obstructive sleep apnea with hypertriglyceridaemia has a genetic influence and heritable factors play an important role in the pathogenesis of dyslipidaemia in obstructive sleep apnea.

Daytime sleepiness

J Sleep Res. 2019 Dec;28(6):e12852. doi: 10.1111/jsr.12852. Epub 2019 Apr 10.

Definition of excessive daytime sleepiness in the general population: Feeling sleepy relates better to sleep-related symptoms and quality of life than the Epworth Sleepiness Scale score. Results from an epidemiological study.

Thorarinsdottir EH^{1,2}, Bjornsdottir E^{2,3,4}, Benediktsdottir B^{2,3}, Janson C⁵, Gislason T^{2,3}, Aspelund T^{2,6}, Kuna ST^{7,8}, Páck AI⁷, Arnardottir ES^{4,9}.

Many different subjective tools are being used to measure excessive daytime sleepiness (EDS) but the most widely used is the Epworth Sleepiness Scale (ESS).

However, it is unclear if using the ESS is adequate on its own when assessing EDS. The aim of this study was to estimate the characteristics and prevalence of EDS using the ESS and the Basic Nordic Sleep Questionnaire (BNSQ) in general population samples. Participants aged 40 years and older answered questions about sleepiness, health, sleep-related symptoms and quality of life. Two groups were defined as suffering from EDS: those who scored >10 on the ESS (with increased risk of dozing off) and those reporting feeling sleepy during the day ≥ 3 times per week on the BNSQ. In total, 1,338 subjects (53% male, 74.1% response rate) participated, 13.1% reported an increased risk of dozing off, 23.2% reported feeling sleepy and 6.4% reported both.

The prevalence of restless leg syndrome, nocturnal gastroesophageal reflux, difficulties initiating and maintaining sleep and nocturnal sweating was higher among subjects reporting feeling sleepy compared to non-sleepy subjects.

Also, subjects reporting feeling sleepy had poorer quality of life and reported more often feeling unrested during the day than non-sleepy subjects. However, subjects reporting increased risk of dozing off (ESS > 10) without feeling sleepy had a similar symptom profile as the non-sleepy subjects. Therefore, reporting only risk of dozing off without feeling sleepy may not reflect problematic sleepiness and more instruments in addition to ESS are needed when evaluating daytime sleepiness

REM sleep in elderly

Neurology. 2020 Jan 7;94(1):e15-e29. doi: 10.1212/WNL.00000000000008694. Epub 2019 Dec 12.

REM sleep atonia loss distinguishes synucleinopathy in older adults with cognitive impairment.

McCarter SJ¹, Tabatabai GM¹, Jong HY¹, Sandness DJ¹, Timm PC¹, Johnson KL¹, McCarter AR¹, Savica R¹, Vemuri P¹, Machulda MM¹, Kantarci K¹, Mielke MM¹, Boeve BF¹, Silber MH¹, St Louis EK².

OBJECTIVE:

To determine whether quantitative polysomnographic REM sleep without atonia (RSWA) distinguishes between cognitive impairment phenotypes.

BACKGROUND:

Neurodegenerative cognitive impairment in older adults predominantly correlates with tauopathy or synucleinopathy. Accurate antemortem phenotypic diagnosis has important prognostic and treatment implications; additional clinical tools might distinguish between dementia syndromes.

METHODS:

We quantitatively analyzed RSWA in 61 older adults who underwent polysomnography including 46 with cognitive impairment (20 probable synucleinopathy), 26 probable non-synucleinopathy (15 probable Alzheimer disease, 11 frontotemporal lobar dementia), and 15 age- and sex-matched controls. Submentalis and anterior tibialis RSWA metrics and automated REM atonia index were calculated. Group statistical comparisons and regression were performed, and receiver operating characteristic curves determined diagnostic RSWA thresholds that best distinguished synucleinopathy phenotype.

RESULTS:

Submentalis-but not anterior tibialis RSWA-was greater in synucleinopathy than nonsynucleinopathy; several RSWA diagnostic thresholds distinguished synucleinopathy with excellent specificity including submentalis tonic, 5.6% (area under the curve [AUC] 0.791); submentalis any, 15.0% (AUC 0.871); submentalis phasic, 10.8% (AUC 0.863); and anterior tibialis phasic, 31.4% (AUC 0.694). In the subset of patients without dream enactment behaviors, submentalis RSWA was also greater in patients with synucleinopathy than in those without synucleinopathy. RSWA was detected more frequently by quantitative than qualitative methods ($p = 0.0001$).

CONCLUSION:

Elevated submentalis RSWA distinguishes probable synucleinopathy from probable nonsynucleinopathy in cognitively impaired older adults, even in the absence of clinical dream enactment symptoms.

CLASSIFICATION OF EVIDENCE:

This study provides Class III evidence that quantitative RSWA analysis is useful for distinguishing cognitive impairment phenotypes. Further studies with pathologic confirmation of dementia diagnoses are needed to confirm the diagnostic utility of RSWA in dementia.

14. HEADACHES

Conservative care of HA's

Eur J Pain. 2019 Jul;23(6):1051-1070. doi: 10.1002/ejp.1374. Epub 2019 Feb 28.

Non-pharmacological management of persistent headaches associated with neck pain: A clinical practice guideline from the Ontario protocol for traffic injury management (OPTIMa) collaboration.

Côté P^{1,2,3}, Yu H^{2,4}, Shearer HM^{2,5}, Randhawa K^{2,5}, Wong JJ^{2,4,5}, Mior S^{2,3,5}, Ameis A³, Carroll LJ⁶, Nordin M⁷, Varatharajan S^{2,5}, Sutton D^{2,5}, Southerst D⁸, Jacobs C^{2,9}, Stupar M², Taylor-Vaisey A², Gross DP^{10,11}, Brison RJ^{12,13}, Paulden M¹⁴, Ammendolia C^{15,16}, Cassidy JD^{17,18}, Loisel P^{5,19}, Marshall S²⁰, Bohay RN²¹, Stapleton J²², Lacerte M^{23,24}.

OBJECTIVES:

To develop an evidence-based guideline for the non-pharmacological management of persistent headaches associated with neck pain (i.e., tension-type or cervicogenic).

METHODS:

This guideline is based on systematic reviews of high-quality studies. A multidisciplinary expert panel considered the evidence of clinical benefits, cost-effectiveness, societal and ethical values, and patient experiences when formulating recommendations. Target audience includes clinicians; target population is adults with persistent headaches associated with neck pain.

RESULTS:

When managing patients with headaches associated with neck pain, clinicians should (a) rule out major structural or other pathologies, or migraine as the cause of headaches; (b) classify headaches associated with neck pain as tension-type headache or cervicogenic headache once other sources of headache pathology has been ruled out; (c) provide care in partnership with the patient and involve the patient in care planning and decision making; (d) provide care in addition to structured patient education; (e) consider low-load endurance craniocervical and cervicospinal exercises for tension-type headaches (episodic or chronic) or cervicogenic headaches >3 months duration; (f) consider general exercise, multimodal care (spinal mobilization, craniocervical exercise and postural correction) or clinical massage for chronic tension-type headaches; (g) do not offer manipulation of the cervical spine as the sole form of treatment for episodic or chronic tension-type headaches; (h) consider manual therapy (manipulation with or without mobilization) to the cervical and thoracic spine for cervicogenic headaches >3 months duration. However, there is no added benefit in combining spinal manipulation, spinal mobilization and exercises; and (i) reassess the patient at every visit to assess outcomes and determine whether a referral is indicated.

CONCLUSIONS:

Our evidence-based guideline provides recommendations for the conservative management of persistent headaches associated with neck pain. The impact of the guideline in clinical practice requires validation.

SIGNIFICANCE:

Neck pain and headaches are very common comorbidities in the population. Tension-type and cervicogenic headaches can be treated effectively with specific exercises. Manual therapy can be considered as an adjunct therapy to exercise to treat patients with cervicogenic headaches. The management of tension-type and cervicogenic headaches should be patient-centred. **15.**

16. CONCUSSIONS

Psychiatric disorders following

Arch Phys Med Rehabil. 2020 Jan 6. pii: S0003-9993(19)31501-1. doi: 0.1016/j.apmr.2019.12.005.

Psychiatric disorders following traumatic brain injury: a nationwide population-based cohort study and the effects of rehabilitation therapies.

Yeh TC¹, Chien WC², Chung CH³, Liang CS⁴, Chang HA⁵, Kao YC⁶, Yeh HW⁷, Yang YJ⁸, Tzeng NS⁹.

OBJECTIVE:

To investigate the risk of psychiatric disorders following TBI, and to clarify whether the post-TBI rehabilitation was associated with a lower risk of developing psychiatric disorders.

DESIGN:

A register-based, retrospective cohort design SETTING: Using data from the National Health Insurance Research Database (NHIRD) of Taiwan, we established an exposed cohort with TBI and a nonexposed group without TBI matched by age and year of diagnosis between 2000 and 2015.

PARTICIPANTS:

This study included 231,894 patients with TBI and 695,682 controls.

INTERVENTIONS:

Rehabilitation therapies in TBI patients.

MAIN OUTCOME MEASURES:

A multivariable Cox proportional hazards regression model was used to compare the risk of developing psychiatric disorders.

RESULTS:

The incidence rate of psychiatric disorders was higher in the TBI group when compared with the control group. Compared with the control group, the risk of psychiatric disorders in the TBI group was twofold (HR=2.056, 95% CI:1.940- 2.172, $p < 0.001$). Among the TBI subjects, 49,270 (21.25%) had received rehabilitation therapy and had a lower risk of psychiatric disorders (HR=0.691, 95% CI: 0.679-0.703, $p < 0.001$). In the subgroup analysis, the medium- to high-level intensity rehabilitation therapy was associated with lower risks of psychiatric disorder (HR=0.712 and 0.568, respectively), but there was no significant finding in the low-intensity group.

CONCLUSIONS:

We found that TBI was associated with a high risk for developing psychiatric disorders, and that the post-TBI rehabilitation significantly reduced the risk of psychiatric disorders in a dose-dependent manner.

Gait speed impacted from concussion

Br J Sports Med. 2020 Jan;54(2):94-101. doi: 10.1136/bjsports-2018-100164. Epub 2019 Jul 22.

Concussed athletes walk slower than non-concussed athletes during cognitive-motor dual-task assessments but not during single-task assessments 2 months after sports concussion: a systematic review and meta-analysis using individual participant data.

Büttner F¹, Howell DR^{2,3,4}, Ardern CL^{5,6}, Doherty C^{7,8}, Blake C⁷, Ryan J⁹, Catena R¹⁰, Chou LS¹¹, Fino P¹², Rochefort C¹³, Sveistrup H^{13,14}, Parker T¹⁵, Delahunt E^{7,16}.

OBJECTIVES:

To determine whether individuals who sustained a sports concussion would exhibit persistent impairments in gait and quiet standing compared to non-injured controls during a dual-task assessment .

DESIGN:

Systematic review and meta-analysis using individual participant data (IPD).

DATA SOURCES:

The search strategy was applied across seven electronic bibliographic and grey literature databases: MEDLINE, EMBASE, CINAHL, SportDISCUS, PsycINFO, PsycARTICLES and Web of Science, from database inception until June 2017.

ELIGIBILITY CRITERIA FOR STUDY SELECTION:

Studies were included if; individuals with a sports concussion and non-injured controls were included as participants; a steady-state walking or static postural balance task was used as the primary motor task; dual-task performance was assessed with the addition of a secondary cognitive task; spatiotemporal, kinematic or kinetic outcome variables were reported, and; included studies comprised an observational study design with case-control matching.

DATA EXTRACTION AND SYNTHESIS:

Our review is reported in line with the Preferred Reporting Items for Systematic review and Meta-Analyses-IPD Statement. We implemented the Risk of Bias Assessment tool for Non-randomised Studies to undertake an outcome-level risk of bias assessment using a domain-based tool. Study-level data were synthesised in one of three tiers depending on the availability and quality of data: (1) homogeneous IPD; (2) heterogeneous IPD and (3) aggregate data for inclusion in a descriptive synthesis. IPD were aggregated using a 'one-stage', random-effects model.

RESULTS:

26 studies were included. IPD were available for 20 included studies. Consistently high and unclear risk of bias was identified for selection, detection, attrition, and reporting biases across studies. Individuals with a recent sports concussion walked with slower average walking speed ($\chi^2=51.7$; $df=4$; $p<0.001$; mean difference=0.06 m/s; 95% CI: 0.004 to 0.11) and greater frontal plane centre of mass displacement ($\chi^2=10.3$; $df=4$; $p=0.036$; mean difference -0.0039 m; 95% CI: -0.0075 to -0.0004) than controls when evaluated using a dual-task assessment up to 2 months following concussion.

SUMMARY/CONCLUSIONS:

Our IPD evidence synthesis identifies that, when evaluated using a dual-task assessment, individuals who had incurred a sports concussion exhibited impairments in gait that persisted beyond reported standard clinical recovery timelines of 7-10 days. Dual-task assessment (with motion capture) may be a useful clinical assessment to evaluate recovery after sports concussion.

20 A. ROTATOR CUFF**PT as effective as surgery**

J Shoulder Elbow Surg. 2020 Jan 7. pii: S1058-2746(19)30717-7. doi: 10.1016/j.jse.2019.10.013.

Surgery and physiotherapy were both successful in the treatment of small, acute, traumatic rotator cuff tears: a prospective randomized trial.

Ranebo MC¹, Björnsson Hallgren HC², Holmgren T³, Adolfsson LE⁴.

BACKGROUND:

Previous randomized trials on cuff repair have included mainly degenerative tears, but studies on acute traumatic tears are lacking. We aimed to compare early surgical repair with nonoperative treatment for traumatic supraspinatus tears.

METHODS:

We did a 2-center randomized controlled trial of patients with small rotator cuff tears mainly involving supraspinatus, comparing surgical repair (n = 32) and physiotherapy (n = 26). The primary outcome was a group difference in the Constant-Murley score at 12-month follow-up. Secondary outcomes were differences in the Western Ontario Rotator Cuff index, pain (Numerical Rating Scale 0-10), and Euro quality-of-life-visual analog scale. We used magnetic resonance imaging to assess retear rate, tear progression, fatty infiltration, and atrophy.

RESULTS:

The mean age was 59.7 years (range, 44-77 years), median sagittal tear size was 9.7 mm (range, 4-21 mm), and baseline characteristics were well balanced between the 2 groups. The repair group had a median Constant-Murley of 83 (25 quartile range [QR]) and the physiotherapy group 78 (QR, 22) at 12 months, with the between-group difference in medians of 4.5 (-5 to 9, 95% confidence interval; P = .68). The corresponding values for the Western Ontario Rotator Cuff index were 91% (QR, 24) vs. 86% (QR, 24), with the between-group difference of 5.0 (-4 to 9, 95% confidence interval; P = .62). There was no difference in Numerical Rating Scale or in Euro quality-of-life-visual analog scale. Retear was found in 6.5% of repaired patients and tear progression >5 mm in 29.2% of unrepaired patients.

CONCLUSIONS:

We found no significant differences in clinical outcomes between cuff repair and nonoperative treatment at 12-month follow-up. Approximately one third of unrepaired patients had a tear enlargement of more than 5

35. KNEE/TOTAL

Improved golf

A Playtime and Handicap Analysis of 143 Regular Golfers After Total Knee Arthroplasty At Minimum 2 Year-Follow-Up

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Belinda J. Smith, BAppSc^d Rémy Nizard, MD, PhD^a

DOI: <https://doi.org/10.1016/j.arth.2020.01.005>

Background

Regular and competitive golfers are concerned by the ability to recover their previous activity golfing after total knee arthroplasty. The purpose of this study was to conduct targeted analysis of the effect of unilateral total knee replacement on the play-time and golf level in a population of experienced golfers, with a minimum follow-up of two years.

Methods

Questionnaires were distributed to the French Golf Federation's golfing members. Those who were over 50 years of age and had undergone a unilateral primary total knee arthroplasty provided information on the timing of return to play, mode of movement on the course, pain during golfing, physical activity via UCLA scale, level of golf and weekly playing time, before and after surgery. Additionally, surgeons' recommendations and level of arthroplasty satisfaction were collected.

Results

Questionnaires were completed by 290 competitive golfers, of which 143 were eligible for inclusion. The average time to return to the 18-hole course was 3.7 months. Participants surveyed at a minimum 2 years after TKA played at a higher level than before surgery with a handicap improvement of 0.85, and increased their average weekly playtime from 8.9 to 10.2 hours. Knee pain while playing golf decreased after surgery (6.13 to 1.27 on the Visual Analogue Scale) and the UCLA score improved (7.02 to 7.85).

Conclusion

This study demonstrated the ability of regular golfers to return to golf within six months after unilateral total knee replacement, with increasing level of golf and weekly playtime and better golfing comfort.

45 A. MANUAL THERAPY LUMBAR & GENERAL

CST helps autism

The use of CranioSacral therapy for Autism Spectrum Disorders: Benefits from the viewpoints of parents, clients, and therapists.

Kratz SV, et al. J Bodyw Mov Ther. 2017.

Abstract

OBJECTIVES: The objectives of this preliminary study were to explore: the use of CranioSacral Therapy for persons with Autism Spectrum Disorder, the demographics of participants, and the retrospective interpretation of reported changes related to the intervention. Participants included therapists, parents, and clients.

METHODS: Recruitment of participants was conducted through electronic social and professional networks. Online questionnaire surveys were provided. Demographic questions were posed to understand both the extent of clinical use and the rationales for such treatment, and surveys were unique to each subject groups. All participants were given a 20-item functional behavior checklist as a means to measure their perception of change attributed to this intervention. Open-ended comments were also encouraged to explore perspectives from their experiential treatments. The Qualitative data collected was analyzed via Inductive Content Analysis. The data was stored on excel and analyzed manually and independently by all 3 authors.

RESULTS: A total of 405 people responded to the recruitments and of the participants who completed surveys, 264 were therapists and 124 parents. Only a small sampling of clients responded. The demographics of professionals using CST for ASD, their level of CST training, and their qualifications to work with ASD were reflected. Demographics and referral sources of parents, and other details of their experiences, were surveyed. Perceived changes to the use of CST were explored through analysis of responses to both the Likert scale as well as the open comments.

CONCLUSIONS: This preliminary study introduces the concept of CranioSacral Therapy as a treatment option for symptoms associated with ASD. Its clinical use has been available for three decades but few empirical studies exist. The results of the survey suggest that CST is already being professionally recommended as a treatment. This study found that there were positive responses observed by all 3 targeted groups leading to the authors concluding that there is worthy cause to further investigate how CST benefits Autism Spectrum Disorders (ASD).

45 B. MANUAL THERAPY CERVICAL**Alar ligament****Effect of alar ligament transection in side-bending stress test: A cadaveric study**

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DOI: <https://doi.org/10.1016/j.msksp.2020.102110>

Highlights

- This in vitro study simulates the clinical application of the side bending stress test.
- C2 fixation in our study provided a reference for measuring upper cervical side bending.
- Transection of right alar ligament increased upper cervical side bending bilaterally.

Abstract**Background**

The side-bending stress test is a pre-manipulative screening test for assessing upper cervical instability. To our knowledge, there is no study that simulates the clinical application of side bending stress test before and after alar ligament transection with fixation of C2.

Objective

To simulate the effect of alar ligament transection in the side bending stress test for an in vitro validation.

Design

In vitro study.

Methods

After the dissection of the superficial structures to the alar ligament and the fixation of C2, ten cryopreserved upper cervical spines were manually mobilized in right and left lateral flexion with and without right alar ligament transection. Upper cervical lateral flexion range of motion and mobilization force were measured with the Vicon motion capture system and a load cell respectively.

Results

The right alar ligament transection increased the upper cervical spine (UCS) range of motion (ROM) in both side bendings ($1.30^{\circ} \pm 1.54^{\circ}$ and $1.88^{\circ} \pm 1.51^{\circ}$ increase for right and left side bending respectively). As an average, with standardized forces of 2N, 4N and 6N, right alar ligament transection increased both right and left lateral flexion UCS ROM.

Conclusion

This in vitro study simulates the clinical application of the side bending stress test with intact and right transected alar ligament. Unilateral transection of the alar ligament revealed a predominantly bilateral increase in upper cervical side bending and variability in the mobilization force applied during the test.

49. STRETCHING

Jump height reduced with stretching

Comparison of the effects of static stretching on range of motion and jump height between quadriceps, hamstrings and triceps surae in collegiate basketball players

1. Kosuke Takeuchi¹, Fumiko Tsukuda²

Abstract

Objectives The purpose of the present study was to compare the effects of static stretching (SS) on the range of motion and vertical jump height between the quadriceps, hamstrings and triceps surae in collegiate basketball players.

Methods Fourteen male collegiate basketball players (20.2±0.7 years, 179.0±5.0 cm, 71.9±8.3 kg) underwent 5 min of SS for the quadriceps, hamstrings and triceps surae, in random order. Before and after each stretch, the range of motion (ROM) and vertical jump height were measured.

Results ROM of the quadriceps, hamstrings and triceps surae were increased without any difference of relative change in the range. The vertical jump height showed no change after SS of the quadriceps and hamstrings, while it decreased after SS of the triceps surae ($p < 0.05$).

Conclusion These results suggested that SS for the triceps surae may have a large impact on jump performance.

View Full Text

<http://dx.doi.org/10.1136/bmjsem-2019-000631>

What are the new findings?

- This is the first study to compare the effects of static stretching between the quadriceps, hamstrings and triceps surae.
- Range of motion increased without significant difference between the muscles.
- Vertical jump height decreased after static stretching of the triceps surae.

52. EXERCISE

Exercise improves health

Association between lifestyle and musculoskeletal pain: cross-sectional study among 10,000 adults from the general working population

Jéssica Kirsch Micheletti, Rúni Bláfoss, Emil Sundstrup, Hans Bay, Carlos Marcelo Pastre & Lars Louis Andersen

BMC Musculoskeletal Disorders volume 20,
Background

Work-related musculoskeletal pain is a major cause of work disability and sickness absence. While pain is a multifactorial phenomenon being influenced by work as well as lifestyle, less is known about the association between specific lifestyle factors and the type of musculoskeletal pain. The aim of the study was to investigate if a dose-response association existed between lifestyle factors and musculoskeletal pain intensity in the low back and neck-shoulder.

Methods

Currently employed wage earners ($N = 10,427$) replied in 2010 to questions about work environment, lifestyle and health. Logistic regression analyses adjusted for various confounders tested the association of alcohol intake, physical activity, fruit and vegetable intake, and smoking (explanatory variables) with low back pain and neck-shoulder pain intensity (outcomes variables, scale 0–9, where ≥ 4 is high pain).

Results

The minimally adjusted model found that physical activity and fruit and vegetable intake were associated with lower risk of musculoskeletal pain, while smoking was associated with higher risk of musculoskeletal pain. In the fully adjusted model, physical activity ≥ 5 h per week was associated with lower risk of low back pain and neck-shoulder pain with risk ratios (RR) of 0.95 (95% CI 0.90–1.00) and 0.90 (95% CI 0.82–0.99), respectively. No association was found between alcohol intake and pain.

Conclusion

Being physically active associated with lower risk of having musculoskeletal pain, while smoking habits and healthy eating were associated with higher pain when adjusting for age and gender. Considering the continuously increasing retirement age in many societies, initiatives to promote healthy habits should still be a political priority to help the workers to stay healthy and cope to their work.

54. POSTURE

Exercise did not change shoulder girdle posture

J Shoulder Elbow Surg. 2020 Jan;29(1):e29-e36. doi: 10.1016/j.jse.2019.05.037. Epub 2019 Aug 13.

Exercise therapy may affect scapular position and motion in individuals with scapular dyskinesis: a systematic review of clinical trials.

Nodehi Moghadam A¹, Rahnama L², Noorizadeh Dehkordi S³, Abdollahi S⁴.

BACKGROUND:

Therapeutic exercise for scapular muscles is suggested to be effective in reducing shoulder pain in patients with rotator cuff disorders, whereas its effectiveness on scapular position and motion has remained unclear. Therefore, the aim of this systematic review was to investigate whether exercise therapy improves scapular position and motion in individuals with scapular dyskinesis.

METHODS:

This study is a wide systematic review including any type of clinical trial in which the effect of any type of therapeutic exercise, including scapular muscle strengthening, stretching, and scapular stabilization exercise, is investigated in adult participants.

RESULTS:

Twenty studies were included in this systematic review. Studies were categorized on the basis of the techniques they used to measure scapular position and motion and the included participants. Methodologic quality of the studies was assessed by the Cochrane tool of assessing the risk of bias. Eight studies used 3-dimensional techniques for measuring scapular motions. Among them, 5 studies showed significant effects of exercise on scapular motion, of which 3 studies investigated individuals with subacromial impingement syndrome (SIS). The other 12 studies used 2-dimensional measurement techniques, of which 8 studies reported significant effects of exercise on scapular position and motion both in SIS patients and in asymptomatic individuals. However, their methodologic quality was debatable. Therefore, there was conflicting evidence for the effect of exercise on scapular dyskinesis.

CONCLUSION:

There is a lack of evidence for beneficial effects of exercise in improving scapular position and motion in individuals with scapular dyskinesis. However, exercise is beneficial in reducing pain and disability in individuals with SIS.

63. PHARMACOLOGY

Downsides of Fluoroquinolones – Joint pain

High Incidence of New-Onset Joint Pain in Patients on Fluoroquinolones as Antituberculous Treatment

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<https://doi.org/10.1159/000505102>

Background: Joint pain is frequently observed in patients on antituberculous treatment, and pyrazinamide is known to be associated with joint pain in patients receiving antituberculous treatment. Fluoroquinolone-associated joint pain and tendon injury have been reported in long-term corticosteroid and transplant recipients, but data are lacking in patients with tuberculosis.

Objectives: The objective of this study was to examine the incidence of joint pain manifested during administration of antituberculous therapy and their association with fluoroquinolones.

Methods: Patients diagnosed with tuberculosis attending the outpatient clinic over a period of 1 year were reviewed and divided into 3 groups: group A receiving pyrazinamide, group B receiving a fluoroquinolone, and group C receiving both pyrazinamide and a fluoroquinolone. Latency to onset of joint pain was noted in all 3 groups. Joint pain was initially managed with analgesics, and associated hyperuricemia was treated with allopurinol/febuxostat. Causative drugs were stopped in case of intolerable joint pain.

Results: 260 patients (47% females, aged 38 ± 18 years; mean \pm SD) were included [group A ($n = 140$), group B ($n = 81$), and group C ($n = 39$)]. Overall, 76/260 (29%) patients developed joint pain: group A – 24/140 patients (17%), group B – 32/81 patients (40%), and group C – 20/39 patients (51%). The median latency to the onset of joint pain was 83 days (interquartile range, IQR 40–167): 55 days (IQR 32–66) in group A, 138 days (IQR 74–278) in group B, and 88 days (IQR 34–183) in group C. Hyperuricemia was present in 12/24 (50%) patients in group A and 11/20 (55%) patients in group C. Pyrazinamide was stopped in 7/140 (5%) patients in group A, fluoroquinolones in 6/81 (7%) patients in group B, and both pyrazinamide and fluoroquinolones were stopped in 5/39 (13%) patients in group C because of intolerable joint pain. Major joints affected were knees and ankles.

Conclusion: There is a high incidence of joint pain in patients receiving antituberculous treatment, which is higher when fluoroquinolones or the pyrazinamide-fluoroquinolone combination are administered as compared to pyrazinamide alone.

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