

7. PELVIC ORGANS/WOMAN'S HEALTH

Vit D for pregnancy

Vitamin D Supplementation to Improve Pregnancy and Perinatal Outcomes: An Overview of 42 Systematic Reviews

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Objective: To review the evidence to assess effectiveness of vitamin D supplementation during pregnancy and associations of serum vitamin D levels with perinatal outcomes. **Design:** Overview of systematic reviews (SRs).

Data sources: Searches conducted in January 2019: Ovid Medline (1946-), Cochrane Library databases.

Eligibility criteria for selecting studies: Two reviewers independently screened titles and abstracts, and full texts using predefined inclusion criteria: SRs evaluating vitamin D supplementation in pregnant women and/or examining the association between serum vitamin D levels reporting at least one predefined perinatal outcome. Only SRs with high AMSTAR scores were analysed.

Data extraction and synthesis: Data were extracted independently by one reviewer and checked by a second. Results were assessed for quality independently by two reviewers using GRADE criteria.

Results: Thirteen SRs were included, synthesising evidence from 204 unique primary studies. SRs of randomised controlled trials (RCTs) with the highest level of evidence showed no significant benefit from vitamin D in terms of preterm birth (RR 1.00 (95% CI 0.77, 1.30); high quality), pre-eclampsia (RR 0.91 (0.45, 1.86); low quality), gestational diabetes (RR 0.65 (0.39, 1.08); very low quality), stillbirth (RR 0.75 (0.50, 1.12); high quality), low birth weight (RR 0.74 (0.47, 1.16); low quality), caesarean section (RR 1.02 (0.93, 1.12); high quality). A significant difference was found for small for gestational age (RR 0.72 (0.52, 0.99); low quality). SRs of observational studies showed associations between vitamin D levels and preterm birth (RR 1.19 (1.08, 1.31); moderate quality), pre-eclampsia (RR 1.57 (1.21, 2.03) for 25-hydroxy vitamin D (25 (OH)D)<50 nmol/L subgroup; low quality), gestational diabetes (RR 1.12 (1.02, 1.22) for 25 (OH)D<50 nmol/L and RR 1.09 (1.03, 1.15)<75 nmol/L; moderate quality) and small for gestational age (RR 1.35 (1.18, 1.54)<50 nmol/L; low quality). SRs showed mixed results for associations between vitamin D and low birth weight (very low quality) and caesarean section (very low quality).

Conclusion: There is some evidence from SRs of observational studies for associations between vitamin D serum levels and some outcomes; however SRs examining effectiveness from RCTs showed no effect of vitamin D supplementation in pregnancy with the exception of one predefined outcome, which had low quality evidence. Credibility of the evidence in this field is compromised by study limitations (in particular, the possibility of confounding among observational studies), inconsistency, imprecision and potential for reporting and publication biases.

Diastasis rectus

January 2020 Volume 24, Issue 1, Pages 147–153

Anterior and posterior rectus abdominis sheath stiffness in relation to diastasis recti: Abdominal wall training or not?

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DOI: <https://doi.org/10.1016/j.jbmt.2019.10.015>

Introduction

This study explores the anatomical relation of the rectus abdominis muscles with the anterior and posterior rectus sheaths. The elastic behavior of these fascial sheets is also assessed. Both of these analyses form an anatomic-biomechanical basis for diagnosis and treatment, especially in relation to diastasis recti abdominis (DRA).

Method

Fundamental observational, biomechanical study. Seven post-mortem, embalmed human specimens were dissected. The abdominal muscles and the fascial sheets of the abdominal wall were dissected. 4 × 4 cm samples of the anterior and posterior rectus sheaths were loaded in longitudinal and transverse direction, while recording elongation by means of a displacement sensor. The main outcome measures were anatomical descriptions and elongation of fascia samples in mm (mean and standard ± deviation).

Results

In longitudinal direction the posterior rectus sheath samples stretched over 1.67 ± 0.48 mm, while in transverse direction the mean stretch was 0.29 ± 0.18 mm ($p = 0.001$). In contrast, no significant difference between longitudinal (0.78 ± 0.43 mm) and transversal displacement (0.50 ± 0.23 mm) was observed in the anterior rectus sheath ($p = 0.56$).

Discussion and conclusion

The posterior rectus sheath is functionally more related to the transverse abdominis muscle than to the rectus abdominis muscle. From this connection, in combination with the specific stiffness of the posterior fascia in the lateral direction, it is assumed that the transverse abdominis muscles play an important role in the etiology but also in reduction of DRA. The transverse abdominis and rectus abdominis muscles collaborate in support of the abdominal wall.

Pelvic tissue tension and prolapse**January 2020** Volume 24, Issue 1, Pages 115–125**Development of a biotensegrity focused therapy for the treatment of pelvic organ prolapse: A retrospective case series**Anna Crowle^a, Clare Harley^bDOI: <https://doi.org/10.1016/j.jbmt.2019.10.008>**Introduction**

Pelvic organ prolapse (POP), the bulging of pelvic organs into the vagina, is a common condition thought to be caused by weak pelvic tissue. There is a paucity of evidence supporting current treatment approaches. This case series proposes a new biotensegrity-focused hypothesis that POP is caused by taut pelvic tissue and that releasing pelvic tension will improve POP.

Methods

Three retrospective patient cohorts are presented illustrating the development of the new biotensegrity-focused therapy (BFT) approach. All women received: postural assessment; pelvic tissue examination; and myofascial release of taut pelvic tissue, trigger points, and scar tissue. A standard assessment protocol (SOTAP) recorded patients' Subjective experience, the therapist's Objective assessment, the Treatment plan, Assessment of treatment outcomes, and subsequent treatment and self-care Plans. Cohort three additionally self-reported symptoms using the short-form PFDI-20 questionnaire at baseline and after final treatment.

Results

Twenty-three women participated (Cohort 1 n = 7; Cohort 2 n = 7; Cohort 3 n = 9). Fourteen (61%) presented with cystocele, 10 (44%) urethrocele, 7 (30%), cervical descent, and 17 (74%) rectocele. Seven (30%) presented with single prolapse, 8 (35%) double, 6 (26%) triple, and 2 (9%) quadruple. Median treatments received was 5 (range 3–8). All women reported improved prolapse symptoms. Cohort 3 (n = 9) reported clinically meaningful reductions (mean 56%) in PFDI-20 total after final treatment.

Conclusions

This case series offers preliminary evidence for the association between POP and pelvic tissue tension. Further research is needed to explore these findings and to determine the efficacy of BFT for treating POP in a wider sample.

8. VISCERA

Torticollis rx through visceral and neural

Neural and visceral manipulation in infants with congenital muscular torticollis: a feasibility study

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2020 Volume 32 Issue 1 Pages 7-15

[DOI https://doi.org/10.1589/jpts.32.7](https://doi.org/10.1589/jpts.32.7)

[Purpose] As an alternative to manual stretching, the aim of this study was to investigate the feasibility of using neural/visceral manipulation as a safe and effective intervention to increase neck range of motion of infants with congenital muscular torticollis.

[Participants and Methods] Ten 4-month old infants with congenital muscular torticollis received eight sessions of neural/visceral manipulation administered for 30–50 minutes without observed pain. Specific palpation techniques addressed restricted tissue areas of neck, head, trunk and extremities. Neck rotation and lateral flexion were assessed by still photography and a computer program calculating ROM angles before, immediately following, and 4 months post intervention. Motor development and social competence were monitored over time using the Alberta Infant Motor Scale and Bayley-III Social Emotional Scale.

[Results] Results of analysis of variances revealed significant improvements in passive and active neck rotation and lateral flexion. Significant increases were also found on the Alberta Infant Motor Scale and Bayley-III Social-Emotional scale.

[Conclusion] Neural/visceral manipulation can be used safely in infants with congenital muscular torticollis to improve neck range of motion.

20 A. ROTATOR CUFF**Stem cells**

Arthroscopy. 2019 Dec 2. pii: S0749-8063(19)31160-0. doi: 10.1016/j.arthro.2019.11.120

Intratendinous Injection of Mesenchymal Stem Cells for the Treatment of Rotator Cuff Disease: A 2-Year Follow-Up Study.

Jo CH¹, Yoon KS², Chai JW³, Jeong EC⁴, Oh S⁵.

PURPOSE:

To assess the mid-term safety and efficacy of an intratendinous injection of autologous adipose tissue derived MSCs (AD MSCs) for rotator cuff disease at 2-year follow-up.

METHODS:

The first part of the study consists of 3 dose-escalation groups; the low- (1.0×10^7 cells), mid- (5.0×10^7), and high-dose (1.0×10^8) groups with 3 patients each for the evaluation of the safety. The second part was planned to include nine patients receiving the high-dose for the evaluation of the exploratory efficacy. Clinical outcomes were assessed according to pain, range of motion, muscle strength, functional scores, overall satisfaction and function, and the presence of failure. Structural outcome included changes of volume of tendon defects measured using MRI.

RESULTS:

Nineteen patients (9 for the first study, and 10 for the second) with a partial-thickness rotator cuff tear were enrolled. There were no treatment-related adverse events at minimum 2-year follow-up. Intratendinous injection of AD MSCs reduced shoulder pain by approximately 90% at 1 and 2 years in the mid- and high-dose groups. The strengths of the supraspinatus, infraspinatus, and teres minor significantly increased greater than 50% at 2 years in the high dose group. Shoulder function measured with the six commonly used scores improved for up to 2 years in all dose groups. The structural outcomes evaluated with MRI showed volume of the bursal-side defect in the high-dose group nearly disappeared from 1 year, and did not recur up to 2 years. There were no failures defined as occurrence of any kind of shoulder surgery or the return of the SPADI score back to preinjection level during the follow-up.

CONCLUSIONS:

This study demonstrated continued safety and efficacy of intratendinous injection of AD MSCs of for the treatment of a partial-thickness rotator cuff tear over 2 years through regeneration of tendon defect.

20 B. SHOULDER LABRUM**Measurement of instability**

Arthroscopy. 2019 Nov 27. pii: S0749-8063(19)31101-6. doi: 10.1016/j.arthro.2019.11.111

Labral Morphology and Number of Preoperative Dislocations Are Associated with Recurrent Instability after Arthroscopic Bankart Repair.

Vaswani R¹, Gasbarro G¹, Como C¹, Golan E¹, Fourman M¹, Wilmot A², Borrero C², Vyas D¹, Lin A³.

PURPOSE:

To develop a method to measure capsule and labral volume on preoperative MRI to predict surgical failure after primary Bankart repair.

METHODS:

A retrospective case-control study was conducted on patients undergoing primary anterior arthroscopic shoulder stabilization. Surgical failure was defined as a recurrent dislocation event. Cases were matched to controls based on age and sex in a 1:2 ratio. Pre-operative Magnetic Resonance (MR) arthrograms were analyzed by two trained reviewers employing the Vitrea software to measure labral and capsular volume with a three-dimensional model. Labral size was also qualitatively measured on axial images. A "diffusely small" labrum was defined as labral height less than the width of the glenoid tidemark cartilage.

RESULTS:

Out of the 289 patients who had an arthroscopic Bankart repair from 2006 - 2015, 33 who had a postoperative dislocation met the inclusion criteria and were matched to 62 control patients who did not. There was no difference between groups with regard to age ($p = 0.88$), sex ($p = 0.82$), contact sport participation ($p = 0.79$), proportion of overhead athletes ($p = 0.33$), proportion of throwers ($p = 1$), surgical positioning in lateral decubitus ($p = 0.18$), or number of repair anchors used ($p = 0.91$). The average number of preoperative dislocations was significantly higher in the failure group (3.2 vs. 2.0, $p < 0.0001$). In patients with normal labrum morphology, the odds of having surgical failure increased by 26% for a one unit increase in the number of prior dislocations (OR 1.26, 95% CI 1.02 - 1.55). The case and control groups had similar labral and capsular volume as measured on Vitrea. The failure group had a significantly higher proportion of patients with a diffusely small labral morphology (47% vs. 17%, $p = 0.03$). Controlling for number of preoperative dislocations, the odds of having a "diffusely small" labral morphology was 3.2 times more likely in the case group than the control group (95% CI 1.259 - 8.188). Interrater reliability between two independent reviewers was excellent for measurement of capsule volume ($r = 0.91$) and good for measurement of labral volume ($r = 0.74$).

CONCLUSIONS:

This study presents a novel method of measuring labral and capsule volume with high interrater reliability. An increased number of recurrent dislocations prior to primary Bankart repair was associated with increased odds of recurrent instability after surgery. The odds ratio for failure also increased with increasing number of preoperative dislocations. Diffusely small labral morphology was associated with having a postoperative redislocation.

22 A. SHOULDER IMPINGEMENT

Treating thoracic mobility

Journal of Bodywork and Movement Therapies Volume 24, Issue 1, January 2020, Pages 93-99

Physiotherapist survey: Increasing thoracic spine movement within the management of chronic subacromial impingement syndrome

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<https://doi.org/10.1016/j.jbmt.2019.06.013>

Aims

This study's primary aim is to address two questions. Firstly; what evidence exists regarding the inclusion of increasing thoracic movement within the management of subacromial impingement syndrome SIS?; and secondly, what proportion of Society of Musculoskeletal Medicine (SOMM) physiotherapists use this form of treatment within SIS management?

Methods

An online survey was conducted using a questionnaire incorporating a vignette describing a patient with chronic SIS. The SOMM physiotherapy members were sampled using convenience sampling.

Findings

This study has identified some evidence supporting increasing movement of the thoracic spine in the management of patients with SIS. No study or guideline protocols have been identified that advocate the use of this form of treatment, nor research identified that investigates physiotherapists' use of this form of treatment within SIS management. Of the 1340 physiotherapists surveyed, 52 responded of which 79% stated that they would use treatment aimed at increasing movement of the thoracic spine within SIS management. Chi Square analysis suggests no significant association between using this treatment and number of years experience (p value = 0.15) or courses attended (p = 0.62).

Conclusions

Evidence suggests it is beneficial to include treatment to increase thoracic spine mobility within SIS management. This study highlights the need for the clinician to be aware of the role of the thoracic spine in relation to the biomechanics of the shoulder complex. Of the sample of SOMM physiotherapists obtained, the majority stated that they would use this form of treatment. Further research is recommended.

33. MENISCUS

Root repair

Medial vs. Lateral Meniscus Root Tears: Is There a Difference in Injury Presentation, Treatment Decisions, and Surgical Repair Outcomes?

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DOI: <https://doi.org/10.1016/j.arthro.2019.11.098>

Purpose

To determine (1) the demographic characteristics as well as radiographic findings of medial versus lateral meniscal root tears at time of presentation, (2) treatment decisions and clinical outcomes of patients undergoing medial versus lateral root repair, and (3) risk factors for worse clinical and radiographic outcomes.

Methods

A retrospective review was performed to identify patients with symptomatic, medial, or lateral meniscus posterior root tears with a minimum 2-year follow-up. Radiographs were graded using Kellgren-Lawrence scores. Subanalysis was performed on 62 patients who underwent root repair. Tegner, Lysholm, International Knee Documentation Committee scores, and progression to arthroplasty were analyzed in the repair groups. Patient demographics, radiographic findings, and clinical outcomes were compared between medial meniscus posterior horn root tear (MMRT) and lateral meniscus root repair (LMRT).

Results

Of the 141 root tears, 109 were MMRTs, 30 were LMRTs, and 2 patients had both. At the time of injury, patients with MMRTs had a significantly higher age (MMRT = 51.4 vs LMRT=24.6, $P < .0001$), body mass index (MMRT = 32.1 vs LMRT 25.8, $P < .0001$), Kellgren-Lawrence score (MMRT = 1.3 vs LMRT=0.6, $P < .0001$), and higher rate of major meniscal extrusion (MMRT = 72% vs LMRT = 20%, $P < .0001$). Of the 30 LMRT, 30/30 (100.0%) were treated with meniscal repair. With MMRT, 52/109 (48%) were treated nonoperatively, 27/109 (25%) with partial meniscectomy, and 30/109 (27%) with meniscal repair. Sixty-two patients underwent meniscus root repair with an average 41-month follow-up. LMRT had significantly increased International Knee Documentation Committee (LMRT = 89.5, MMRT = 80.4, $P = .02$) and Tegner scores (LMRT = 6.5, MMRT = 5.1, $P < .05$) compared with MMRT.

Conclusions

Compared with MMRTs, LMRTs occur in younger male patients with lower body mass index, less cartilage degeneration, less extrusion on magnetic resonance imaging, and more commonly with a ligament injury. Although good to excellent clinical outcomes were attained in select patients for both medial and lateral meniscus root repair, LMRTs may have better results after repair, suggesting that differences in injury and patient characteristics may contribute to differences in these outcomes.

34. PATELLA**Kinesio taping**

January 2020 Volume 24, Issue 1, Pages 47–55

Investigation of different application techniques for Kinesio Taping® with an accompanying exercise protocol for improvement of pain and functionality in patients with patellofemoral pain syndrome: A pilot study

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DOI: <https://doi.org/10.1016/j.jbmt.2019.05.022>

Background

Patellofemoral pain syndrome (PFPS), characterized by retropatellar and peripatellar pain, is a common disorder affecting young women. Treatment has included exercise-based therapy and taping techniques for rapid reduction of symptoms and pain. Although Kinesio Taping® (KT) has been studied as adjunctive therapy, evidence on its effectiveness is limited and conflicting.

Objective

To determine the feasibility of performing a double-blind randomized controlled trial (RCT) using KT® for PFPS treatment and to determine an ideal sample size.

Design

Double-blind, randomized, controlled pilot study.

Method

Forty-three women (aged 18–45 years) with at least a 3-month history of PFPS were randomized based on the mechanical correction techniques: using KT® for patellar medialization (KT-PM), using KT® for lateral rotation of the femur and tibia (KT-LRFT), and the control group (CG). All groups underwent the same muscle strengthening and motor control procedures for 12 weeks. Knee pain and function were evaluated at baseline, at 6 weeks, at treatment completion (12 weeks), and during the 12-week follow-up using the numerical pain rating scale (NPRS) at rest and during effort, Anterior Knee Pain Scale (AKPS), and single jump hop test.

Results

There were clinically significant differences between the KT-LRFT and the CG in terms of AKPS and NPRS scores during effort at the 6-week and 12-week follow-ups. All groups (within group) showed a significant improvement in pain and function.

Conclusions

A complete RCT using KT® for the treatment of PFPS is feasible with some changes regarding outcome measures and treatment protocols.

Trigger points

Arch Phys Med Rehabil n, 94 (3), 522-6 Mar 2013

Prevalence of Myofascial Trigger Points in the Hip in Patellofemoral Pain

Sean Roach¹, Eric Sorenson, Barbara Headley, Jun G San Juan

- PMID: 23127304 DOI: 10.1016/j.apmr.2012.10.022

Objectives: To determine the prevalence of myofascial trigger points (MTrPs) in the gluteus medius (GMe) and quadratus lumborum (QL) for subjects with patellofemoral pain (PFP), and to examine the relationship between MTrPs and force production of the GMe after treatment.

Design: Randomized controlled trial.

Setting: A physical therapy clinic.

Participants: Subjects (N=52; mean age \pm SD, 30 \pm 12y; mean height \pm SD, 172 \pm 10cm; mean mass \pm SD, 69 \pm 14kg) volunteered and were divided into 2 groups: a PFP group (n=26) consisting of subjects with PFP, and a control group (n=26) with no history of PFP.

Interventions: Patients with PFP received trigger point pressure release therapy (TPPRT).

Main outcome measures: Hip abduction isometric strength and the presence of MTrPs.

Results: Prevalence of bilateral GMe and QL MTrPs for the PFP group was significantly higher compared with controls (P=.001). Subjects in the PFP group displayed significantly less hip abduction strength compared with the control group (P=.007). However, TPPRT did not result in increased force production.

Conclusions: Subjects with PFP have a higher prevalence of MTrPs in bilateral GMe and QL muscles. They demonstrate less hip abduction strength compared with controls, but the TPPRT did not result in an increase in hip abduction strength.

35. KNEE/TOTAL

Changes in gait

Baseline gait muscle activation patterns differ for osteoarthritis patients who undergo total knee arthroplasty 5–8 years later from those who do not

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<https://doi.org/10.1002/acr.24143>

Objective

To determine if baseline quadriceps and hamstrings muscle activity patterns differed between those with medial-compartment knee osteoarthritis who advanced to total knee arthroplasty (TKA) and those who did not, and secondly to examine associations between features extracted from principal component analysis (PCA) and discrete measures.

Methods

Vastus lateralis and medialis, rectus femoris, and lateral and medial hamstrings surface electromyograms were collected from 54 individuals with knee osteoarthritis during walking. Amplitude and temporal characteristics from PCA, co-contraction indices (CCI) for lateral and medial muscle pairs, and root mean square (RMS) amplitudes for early, mid, late, and overall stance were calculated from electromyographic waveforms. At follow-up 5-8 years later, 26 participants reported undergoing TKA. Analysis of Variance models tested for differences in PC scores and discrete measures between TKA and no-TKA groups ($\alpha=0.05$). Pearson product moment correlation coefficients were calculated between PC scores and discrete variables.

Results

The TKA group had higher hamstrings activity magnitudes (PC1), prolonged activity in mid-stance (PC2) for all muscles, and greater lateral CCI. TKA had higher hamstrings RMS activity for all stance phases, and higher mid and late-stance quadriceps RMS activity. PC1 was highly correlated with RMS amplitude (highest overall and early stance). PC2 was correlated with mid and late-stance RMS. CCIs were correlated with PC1 and PC2, with greater variance explained for PC1.

Conclusion

Those advancing to TKA had higher magnitudes and more prolonged agonist and antagonist activity, consistent with less joint unloading. These gait muscle activation patterns indicate a potential conservative intervention target.

45 A. MANUAL THERAPY LUMBAR & GENERAL

Sacral mob and ex for hamstring tears

January 2020 Volume 24, Issue 1, Pages 109–114

Spinal manual therapy and exercises for chronic hamstring injuries in a sprinter: A case report

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DOI: <https://doi.org/10.1016/j.jbmt.2019.10.005>

Introduction

Hamstring injuries tend to be chronic in nature and thus require considerable recovery time in athletes. Although some rehabilitation protocols have been previously advocated, there is no consensus in terms of the treatment protocol for chronic hamstring injuries.

Methods

We present the case of a 15-year-old male sprinter who was successfully treated with a combination of manual therapy targeting the lumbosacral region and hamstring-specific exercises. The patient presented with hamstring pain which persisted for 7 weeks.

Results

Manual therapy immediately reduced pain and increased muscle strength. The patient was able to run satisfactorily without pain 30 days after the initial intervention.

Conclusions

This case report suggests that the use of manual therapy targeting the lumbosacral region, along with hamstring exercises, may be beneficial in chronic hamstring pain management.

Changes in neural tension

The effects of spinal manipulative therapy on lower limb neurodynamic test outcomes in adults: a systematic reviewChristina Melanie Maxwell, Douglas Thomas Lauchlan & **Philippa Margaret Dall**

- <https://doi.org/10.1080/10669817.2019.1569300>

Objective: Spinal Manipulative Therapy (SMT) is a routinely applied treatment modality for various musculoskeletal conditions, including low back pain. The precise mechanisms by which SMT elicits its effects are largely unknown, but recent research supports a multi-system explanation recognizing both biomechanical and neurophysiological mechanisms. Although the evaluation of changes in clinical presentation is complex, objective neurophysiological measures of sensitivity to movement (e.g. neurodynamic tests) can be a valuable clinical indicator in evaluating the effects of SMT. This review aimed to synthesize current literature investigating the effects of SMT on lower limb neurodynamics.

Method: Eight electronic databases were systematically searched for randomized controlled trials (RCT) that applied SMT (against any control) and evaluated lower limb neurodynamics (Passive Straight Leg Raise or Slump Test). Selection and data extraction were conducted by one researcher, reviewed by a second author. Risk of bias (RoB) was assessed using the Cochrane Back Review Group criteria.

Results: Eight RCTs were included, one with high RoB. SMT produced a clinically meaningful ($\geq 6^\circ$) difference in five of these studies compared with inert control, hamstring stretching, and as an adjunct to conventional physiotherapy, but not compared with standard care, as an adjunct to home exercise and advice, or when comparing different SMT techniques. Findings compared to sham were mixed. When reported, effects tentatively lasted up to 6 weeks post-intervention.

Conclusion: Limited evidence suggests SMT-improved range of motion and was more effective than some other interventions. Future research, using standardized Neurodynamic tests, should explore technique types and evaluate longer-term effects.

Level of Evidence: 1a

Changes in pain sensitivity

J Man Manip Ther. 2020 Feb;28(1):15-27. doi: 10.1080/10669817.2019.1572986. Epub 2019 Mar 5.

Effect of spinal manipulative therapy on mechanical pain sensitivity in patients with chronic nonspecific low back pain: a pilot randomized, controlled trial.

Bond BM¹, Kinslow CD¹, Yoder AW¹, Liu W².

Objectives: The *long-term* goal of our study is to improve the understanding of the biological mechanisms associated with spinal manipulative therapy (SMT) in low back pain.

Methods: This project involved a pilot randomized, blinded clinical trial (ClinicalTrials.gov registration number NCT03078114) of 3-week SMT in chronic nonspecific low back pain (CNSLBP) patients. We recruited 29 participants and randomly assigned them into either a SMT ($n = 14$) or sham SMT ($n = 15$) group. Pre- and postintervention, we quantified the effect of SMT on clinical outcomes (Numeric Pain Rating Scale and Oswestry Disability Index) and pressure pain threshold (PPT) at local (lumbar spine), regional (lower extremity), and remote (upper extremity) anatomical sites.

Results: We observed a significant main effect for time signifying reduced hypersensitivity (increased PPT) at local ($p = .015$) and regional ($p = .014$) locations at 3 weeks. Furthermore, we found significant main effects of time indicating improvements in pain ($p < .001$) and disability ($p = .02$) from baseline among all participants regardless of intervention. However, no between-group differences were observed in PPT, clinical pain, or disability between the SMT and sham SMT groups over 3 weeks

Conclusions: After 3 weeks of SMT or sham SMT in CNSLBP patients, we found hypoalgesia at local and remote sites along with improved pain and low back-related disability. **Level of Evidence:** 1b.

Spinal manipulation; chronic; low back pain; lumbar spine; manual therapy; pressure pain threshold; treatment outcome

PMID: 30935324 OI: 10.1080/10669817.2019.1572986

45 B. MANUAL THERAPY CERVICAL**Headache assessment****Physical therapist clinical reasoning and classification inconsistencies in headache disorders: a United States survey**Philip C. Dale , Jacob C. Thomas  & Charles R. Hazle <https://doi.org/10.1080/10669817.2019.1645414>

Objective: The purpose of this study was to investigate the decision-making processes of physical therapists relating to evaluation and categorization of patients with headaches, including consistency with criteria proposed by the International Headache Society (IHS).

Methods: A national online survey was distributed in cooperation with the Academy of Orthopaedic Physical Therapy of the American Physical Therapy Association. Three hypothetical patient case vignettes featuring headache disorders were used as assessment instruments. Additionally, data on physical therapist education, clinical experience, manual therapy training, self-efficacy, and familiarity & consistency with IHS criteria were collected. Physical therapist identification and valuation of clinical features of headache disorders were also examined in the decision-making processes.

Results: Among the 384 respondents, 32.3% classified the tension-type headache case consistent with IHS criteria. The cervicogenic and migraine headache cases were classified at 54.8% and 41.7% consistent with IHS categories, respectively. Experienced clinicians and those with formal manual training categorized patient presentations with greater consistency. Clinician familiarity with IHS classification criteria was low with 73.6% collectively somewhat and not familiar, while 26.4% of physical therapists were self-described as very or moderately familiar.

Discussion: Clinicians' headache categorization was significantly affected by symptom misattribution and weighting of individual examination findings. Weighting by practitioners of clinical features varied markedly with greatest emphasis being placed on detailed manual examination procedures, including passive intervertebral movements. Inconsistencies in valuation of clinical features in headache categorization suggest a need for further formal education in physical therapy educational curricula and in post-graduate education, including of IHS criteria and classification.

48 A. STM

Scar tissue

Abdominal adhesions: A practical review of an often overlooked entityE.Swehli^aA.Boyd^aA.Umbreen^aJ.H.Tabibian^b<https://doi.org/10.1016/j.amsu.2017.01.021>

Highlights

- Abdominal adhesions commonly form after intra-abdominal surgery, radiation, and inflammatory processes.
- In a subset of patients, adhesions lead to problematic symptoms such as abdominal pain, bloating, and bowel obstruction.
- Symptomatic adhesions (i.e. adhesive disease) can be diagnostically elusive and thus under-recognized by physicians.
- Adhesive disease often requires multimodal evaluation; in select patients, operative intervention can be diagnostic and therapeutic.

Abstract

Formation of intra-abdominal adhesions is a common consequence of abdomino-pelvic surgery, radiation therapy, and inflammatory processes.

In a small but clinically significant proportion of patients, adhesive disease may develop, wherein adhesions lead to a variety of chronic symptoms such as abdominal distension, pain, nausea, and abnormal bowel movement pattern which can be daily, intermittent, or episodic. Due to the chronic and troublesome nature of these symptoms, adhesive disease may be life-altering in many patients, particularly when not recognized and appropriately addressed, as is the case not infrequently.

In addition, there is a paucity of literature regarding the evaluation and management of patients with suspected abdominal adhesive disease.

Therefore, in this concise review, we provide a clinically practical synopsis of the etiopathogenesis, symptoms, differential diagnosis, evaluation, and treatment of abdominal adhesive disease.

54. POSTURE

Tibial stress fx

Original Research

Exploring treatment of medial tibial stress syndrome via posture and the MyoKinesthetic system

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Introduction

A standard treatment protocol for medial tibial stress syndrome (MTSS) has not been identified. Clinical practice focuses on local evaluation and treatment neglecting a global approach. The MyoKinesthetic™ (MYK) System includes a full-body postural assessment to identify compensatory patterns that may lead to MTSS. The purpose of this study was to assess the effects of the MYK System in treating patients diagnosed with MTSS.

Method

A multi-site exploratory study was used to assess the effects of the MYK System on perceived pain and disability in patients diagnosed with MTSS. Eighteen physically active patients (6 female, 12 male), ages 18–25 years (19.89 ± 1.32) were treated with the MYK System.

Results

Paired T-tests were utilized to assess change. The change in patient reported pain was statistically significant ($t_{(17)} = 10.48$, $p < .001$, Cohen's $d = 2.48$) and represented an average decrease of 96% in patient reported pain. The change in disablement was statistically significant ($t_{(17)} = 7.39$, $p < .001$, Cohen's $d = 1.74$) and represented an average decrease of 88.2% in patient reported disablement.

Discussion

Participants treated with the MYK System experienced significant improvements and appear to surpass traditional interventions without the need of rest.

Conclusion

Implementation of the MYK System to treat MTSS led to significant decreases in patient reported pain and dysfunction. A full-scale clinical investigation of the MYK System is warranted to determine its effects compared to traditional treatment options.