2. LBP

PT's helps LBP

The role of pain and disability changes after physiotherapy treatment on global perception of improvement in patients with chronic low back pain

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Highlights

- •Pain and disability changes partially explain the global perception of improvement.
- •Pain and disability may not be sufficient to measure the physiotherapy benefits.
- •Further research is needed to examine other patient-perceived benefits.

Abstract

Background

The effectiveness of physiotherapy in patients with chronic low back pain is usually measured through changes in pain and disability domains. However, recent research has suggested that these two domains are not sufficient to capture all the physiotherapy benefits when patients' perspective is considered.

Objective

The aim of this study was to investigate the role of pain and disability changes in explaining the global perception of improvement in patients with chronic low back pain undergoing physiotherapy.

Design Prospective cohort study.

Methods

The study was conducted on183 patients who were referred to physiotherapy treatment due to low back pain lasting more than 12 weeks. Sociodemographic and clinical characteristics were measured at baseline, together with pain intensity and disability. Eight (post-intervention) and twelve weeks later, global perception of improvement was measured together with pain and disability. The Pearson correlation coefficient and linear regression models were used for analyses.

Results

Of the 183 participants included, 144 completed the 12-weeks follow-up. Significant and moderate correlation was found between pain and disability changes and the global perception of improvement after intervention and at the 12-weeks follow-up. Pain and disability changes explained 20.7%–36.3% of the variance in the global perception of improvement.

Conclusions

Pain and disability changes are related and contributed to explaining a partial proportion of variance in the global perception of improvement. The findings suggest that these domains are not sufficient to explain and measure all of the benefits of physiotherapy when patients' global perception of improvement is considered.

7. PELVIC ORGANS/WOMAN'S HEALTH

Mediterranean diet improves infants' airways

Eur Respir J. 2020 Feb 24. pii: 1901215. doi: 10.1183/13993003.01215-2019

Mediterranean diet during pregnancy and childhood respiratory and atopic outcomes: birth cohort study.

Bédard A[1], Northstone K[2], Henderson AJ[2], Shaheen SO[3].

Evidence for associations between Mediterranean diet (MD) during pregnancy and childhood asthma, allergy and related outcomes is conflicting.

Few cohorts have followed children to school age, and none have considered lung function.In the Avon Longitudinal Study of Parents and Children, we analysed associations between maternal MD score during pregnancy (estimated by a food frequency questionnaire, using an *a priori* defined score adapted to pregnant women; score ranging from 0 (low adherence) to 7 (high adherence)) and current doctor-diagnosed asthma, wheeze, eczema, hay fever, atopy, and lung function in 8907 children at 7-9 years. Interaction between maternal MD and maternal smoking in pregnancy was investigated.

The maternal MD score was not associated with asthma or other allergic outcomes. Weak positive associations were found between maternal MD score and childhood maximal mid-expiratory flow (FEF_{25-75}) after controlling for confounders. Higher MD scores were associated with increased FEF_{25-75} z-scores adjusted for age, height and gender (β: 0.06 (0.01, 0.12), p=0.03, comparing a score of 4-7 *versus* a score of 0-3).

Stratifying associations by maternal smoking during pregnancy showed that associations with FEF_{25-75} were only seen in children of never/passive smoking mothers, but no evidence for a statistically significant interaction was found.

Results suggest adherence to a MD during pregnancy may be associated with increased small airway function in childhood, but we found no evidence for a reduced risk of asthma or other allergic outcomes.

8. VISCERA

Celiac disease and brain changes

Cognitive Deficit and White Matter Changes in Persons with Celiac Disease: a Population-Based Study

I.D. Croall[1] D.S. Sanders[2] M. Hadjivassiliou[3] N. Hoggard[1]
DOI: https://doi.org/10.1053/j.gastro.2020.02.028

Background & Aims

There is debate over the presence and prevalence of brain injury in patients with celiac disease. To validate previous reports, we investigated the prevalence of neuropsychological dysfunction in persons with celiac disease included in the National UK Biobank, which contains experimental medical data from 500,000 adults in the United Kingdom.

Methods

Biobank participants with celiac disease (n=104; mean age, 63; 65% female) were matched with healthy individuals (controls, n=198; mean age, 63 y; 67% female) for age, sex, level of education, body mass index, and diagnosis of hypertension. All subjects were otherwise healthy. We compared scores from 5 cognitive tests, and multiple-choice responses to 6 questions about mental health, between groups using t test and $\chi 2$ analyses. Groupwise analyses of magnetic resonance imaging brain data included a study of diffusion tensor imaging metrics (mean diffusivity, fractional anisotropy, radial diffusivity, axial diffusivity), voxel-based morphometry, and Mann-Whitney U comparisons of Fazekas grades.

Results

Compared with controls, participants with celiac disease had significant deficits in reaction time (P=.004) and significantly higher proportions had indications of anxiety (P=.025), depression (P=.015), thoughts of self-harm (P=.025) and health-related unhappiness (P=.010). Tract-based spatial statistics analysis revealed significantly increased axial diffusivity in widespread locations, demonstrating white matter changes in brains of participants with celiac disease. Voxel-based morphometry and Fazekas grade analyses did not differ significantly between groups.

Conclusions

In an analysis of data from the UK Biobank, we found participants with celiac disease to have cognitive deficit, indications of worsened mental health, and white matter changes, based on analyses of brain images. These findings support the concept that celiac disease is associated with neurological and psychological features.

ABSTRACTS

Heart rate

Association between heart rate and reversibility of the symptom, refractoriness to palliative treatment, and survival in dyspneic cancer patients

Journal of Pain and Symptom Management — Mori I, Maeda I, Morita T, et al. | February 25, 2020

In this secondary analysis of a multicenter prospective cohort study involving 2,298 patients, researchers examined the potential connection between heart rate and reversibility of the symptom, treatment response to palliative intervention, and survival in terminally ill cancer patients with dyspnea at rest. Data reported that 418 patients had dyspnea at rest.

Dyspnea reversibility was significantly higher in patients with lower heart rate and in patients with higher heart rate, the refractoriness to palliative treatment tended to be higher. Findings suggested that heart rate can help clinicians to make clinical course predictions more accurate for the patient.

13 B. TMJ/ORAL

TMJ and posture

Clinics (Sao Paulo) , 64 (1), 61-6 2009

The Relationship Between the Stomatognathic System and Body Posture

Antonino Cuccia[1], Carola Caradonna

PMID: 19142553 PMCID: PMC2671973 DOI: 10.1590/s1807-59322009000100011

In recent years, many researchers have investigated the various factors that can influence body posture: mood states, anxiety, head and neck positions, oral functions (respiration, swallowing), oculomotor and visual systems, and the inner ear.

Recent studies indicate a role for trigeminal afferents on body posture, but this has not yet been demonstrated conclusively. The present study aims to review the papers that have shown a relationship between the stomatognathic system and body posture.

These studies suggest that tension in the stomatognathic system can contribute to impaired neural control of posture. Numerous anatomical connections between the stomatognathic system's proprioceptive inputs and nervous structures are implicated in posture (cerebellum, vestibular and oculomotor nuclei, superior colliculus). If the proprioceptive information of the stomatognathic system is inaccurate, then head control and body position may be affected.

In addition, the present review discusses the role the myofascial system plays in posture. If confirmed by further research, these considerations can improve our understanding and treatment of muscular-skeletal disorders that are associated with temporomandibular joint disorders, occlusal changes, and tooth loss.

Oral motor activity (bruxism) and athletic performance.

Front. Psychol., 02 June 2015 | https://doi.org/10.3389/fpsyg.2015.00750

The effect of oral motor activity on the athletic performance of professional golfers

Steffen Ringhof[1*], Daniel Hellmann[2], Florian Meier[1], Eike Etz[2], Hans J. Schindler[2,3 1]

Human motor control is based on complex sensorimotor processes. Recent research has shown that neuromuscular activity of the craniomandibular system (CMS) might affect human motor control.

In particular, improvements in postural stability and muscle strength have been observed as a result of voluntary jaw clenching. Potential benefits of jaw aligning appliances on muscle strength and golf performance have also been described. These reports are highly contradictory, however, and the oral motor task performed is often unclear.

The purpose of our study was, therefore, to investigate the effect of submaximum biting on golf performance via shot precision and shot length over three different distances. Participants were 14 male professional golfers – seven with sleep bruxism and seven without – randomly performing golf shots over 60m, 160m, or driving distance while either biting on an oral splint or biting on their teeth; habitual jaw position served as the control condition. Statistical analysis revealed that oral motor activity did not systematically affect golf performance in respect of shot precision or shot length for 60m, 160 m, or driving distance. These findings were reinforced by impact variables such as club head speed and ball speed, which were also not indicative of significant effects.

The results thus showed that the strength improvements and stabilizing effects described previously are, apparently, not transferable to such coordination-demanding sports as golf. This could be due to the divergent motor demands associated with postural control and muscle strength on the one hand and the complex coordination of a golf swing on the other.

Interestingly, subjects without sleep bruxism performed significantly better at the short distance (60 m) than those with bruxism. Because of the multifactorial etiology of parafunctional CMS activity, conclusions about the need for dental treatment to improve sports performance are, however, completely unwarranted.

Bruxism and stages of sleep

Coherence of jaw and neck muscle activity during sleep bruxism

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Jaco W. Pasman Jonne Doorduin Stanimira I. Kalaykova

https://doi.org/10.1111/joor.12932 https://publons.com/publon/10.1111/joor.12932

Background

Studies have shown co-contraction of jaw and neck muscles in healthy subjects during (sub) maximum voluntary jaw clenching, indicating functional inter-relation between these muscles during awake bruxism. So far, coherence of jaw and neck muscles has not been evaluated during either awake or sleep bruxism.

Objective

The objective of this study was to evaluate the coherence between jaw and neck muscle activity during sleep bruxism.

Methods

In a cross-sectional observational design, the electromyographic activity of jaw (masseter, temporalis) and neck (sternocleidomastoid, trapezius) muscles in individuals with “definite” sleep bruxism was measured using ambulatory polysomnography (PSG). Coherence for masseter-temporalis, masseter-sternocleidomastoid and masseter-trapezius was measured during phasic and mixed rhythmic masticatory muscle activity episodes using coherence-analysing software. Outcome measures were as follows: presence or absence of significant coherence per episode (in percentages), frequency of peak coherence (FPC) per episode and sleep stage.

Results

A total of 632 episodes within 16 PSGs of eight individuals were analysed. Significant coherence was found between the jaw and neck muscles in 84.9% of the episodes. FPCs of masseter-temporalis were significantly positively correlated with those of masseter-sternocleidomastoid or masseter-trapezius ($P < .001$). Sleep stages did not significantly influence coherence of these muscular couples.

Conclusion

During sleep bruxism, jaw and neck muscle activation is significantly coherent. Coherence occurs independently of sleep stage. These results support the hypothesis of bruxism being a centrally regulated phenomenon.

New thoughts on mouth guards

Physiological Responses of a Jaw-Repositioning Custom-Made Mouthguard on Airway and Their Effects on Athletic Performance

Schultz Martins, Ricardo; Girouard, Patrick; Elliott, Evan; Mekary,

doi: 10.1519/JSC.0000000000002679

Martins, RS, Girouard, P, Elliott, E, and Mekary, S. Physiological responses of a jaw repositioning custom-made mouthguard on airway and their effects on athletic performance. *J Strength Cond Res* 34(2): 422–429, 2020—

Advanced dental techniques such as jaw-repositioning have shown to increase lower body muscular power such as vertical jump, but its effects on acceleration and speed have not been studied. Similarly, jaw repositioning is commonly used to increase airways volume and ventilation in a special population (i.e., obstructive sleep apnea); however, its ergogenic effects on aerobic performance have yet not been studied.

The purpose of the cross-over study was to investigate the effects of a jaw-repositioning custom-made mouthguard (JCM) on volumetric changes in airway and jaw position and determine the effects this may have on aerobic and anaerobic performance.

Results indicated that jaw-repositioning custom-made mouthguard may have an ergogenic effect on performance. The JCM condition showed an increase of 13% in upper airway volume (p = 0.04), 10% in upper airway width (p = 0.004), 7% in ventilation (p = 0.006), 5% in maximal aerobic power (p = 0.003), 4% in time to exhaustion (p = 0.03), 3% in vertical jump (p = 0.03), 2% in broad jump (p = 0.009), and a decrease of 4% in 20-m (p = 0.04) and 2% in 40-m (p = 0.001) sprint times.

This is the first study to demonstrate a significant link between jaw repositioning, airway volumetric change, and performance enhancement in both aerobic and anaerobic performances.

The results of this study may lead to a change in culture for the use of mouthguards in different sports applications, from high orofacial injury risk sports to other sports, specifically for ergogenic enhancement.

13 C. AIRWAYS/SWALLOWING/SPEECH

Treatment of breathing and HRV

The Effect of Osteopathic Manual Therapy with Breathing Retraining on Cardiac Autonomic Measures and Breathing Symptoms Scores: A Randomised Wait-List Controlled Trial.

J.G. Benjamin[1] R.W. Moran[1] D.J. Plews[2] A.E. Kilding[2] L.E. Barnett[1] W.J. Verhoeff[3] , C.J. Bacon[1,4,*,]

DOI: https://doi.org/10.1016/j.jbmt.2020.02.014

Background

Breathing retraining and manual therapy (MT), delivered independently or together, influence autonomic activity, and improve symptoms in patients with chronic conditions. This study evaluated the effects of breathing retraining and osteopathic MT on cardiac autonomic measures and breathing symptoms during spontaneous breathing in healthy active adults.

Methods: Participants (n=18) received breathing retraining and four, weekly manual therapy sessions, randomised to start immediately, or after 6-week delay. Heart-rate (HR) variability was assessed as a 7-day average of waking 6-minute electrocardiograms, using time (logarithm of root-mean-square of successive differences; LnRMSSD) and frequency domain (logarithm of high-frequency; LnHF) measures. Recordings were taken before, one week following intervention or delay, and then following the later intervention for those with delayed starts. Changes were compared between those who received and had yet to receive the intervention, and before and after treatment for the whole cohort.

Results: Following the intervention, HR-variability measuresincreased 4% overall (Effect Sizes: 1.0–1.1) for the whole cohort. Between-group analyses showed that the immediate-start group increased more than the delayed start group: LnRMSSD 0.27 (0.02–0.52; 95%CI) ln.ms, and LnHF 0.41 (-0.01–0.84) ln.ms^2 for immediate start; compared withLnRMSSD -0.09 (-0.29–0.11) ln.ms, and LnHF -0.19 (-0.59–0.22) ln.ms^2 (P=0.02–0.03 for interaction) for delayed start. Resting HR decreased following intervention in the whole cohort (Effect Size -0.8; P=0.02).

13 D. SLEEP

Sleep apnea and OLD

J Clin Sleep Med. 2020 Feb 15;16(2):267-277. doi: 10.5664/jcsm.8180. Epub 2020 Jan 13.

Obstructive Lung Disease and Obstructive Sleep Apnea (OLDOSA) cohort study: 10-year assessment.

Ioachimescu OC[1,2], Janocko NJ[1], Ciavatta MM[2], Howard M[1], Warnock MV[1].

STUDY OBJECTIVES:
Asthma, chronic obstructive pulmonary disease (COPD), and obstructive sleep apnea (OSA) are very prevalent disorders. Their coexistence in the same individual has an unclear effect on natural history and long-term outcomes.

METHODS:
The OLDOSA (Obstructive Lung Disease and Obstructive Sleep Apnea) cohort enrolled 4,980 veterans with an acute hospitalization and in whom asthma, COPD, OSA, overlapping conditions, or none of these disorders at baseline had been diagnosed. Pulmonary function, polysomnography, positive airway pressure (PAP) recommendations and adherence, and vital status were collected and analyzed. Various proportional hazards models were built for patients with OSA to test the effect of PAP therapy on survival.

RESULTS:
Ten-year all-cause cumulative mortality rate was 52.8%; median time to death was 2.7 years. In nonoverlapping asthma, OSA and COPD, mortality rates were 54.2%, 60.4%, and 63.0%, respectively. The overlap syndromes had the following mortality: COPD-OSA 53.2%, asthma-COPD 62.1%, asthma-OSA 63.5%, and triple overlap asthma-COPD-OSA 67.8%. In patients with OSA not on PAP therapy, after adjustment for age, comorbidities, and lung function, risk of death was 1.34 (1.05-1.71) times higher than those undergoing treatment. Similarly, in patients with OSA nonadherent to PAP therapy the adjusted risk of death was 1.78 (1.13-2.82) times higher versus those using it at least 70% of nights and more than 4 hours nightly.

CONCLUSIONS:
In this large longitudinal cohort of hospitalized veterans with high comorbid burden, asthma, COPD, OSA and their overlap syndromes had very high long-term mortality. In patients with OSA, PAP initiation and superior therapeutic adherence were associated with significantly better survival.

Embolisms

J Clin Sleep Med. 2020 Feb 17. doi: 10.5664/jcsm.8380.

Acute Pulmonary Embolism in Patients With Obstructive Sleep Apnea: Frequency, Hospital Outcomes and Recurrence.

Seckin ZI[1], Helmi H[1], Weister TJ[2], Lee A[3], Festic E[3].

STUDY OBJECTIVES:
To assess the effect of obstructive sleep apnea (OSA) on the risk of acute pulmonary embolism (PE), hospital outcomes including mortality, and PE recurrence.

METHODS:
We retrospectively enrolled adult patients, admitted to Mayo Clinic Hospital in Rochester, MN within a 5-year period (2009-2013). We compared frequency of PE, hospital mortality and secondary outcomes in OSA versus non-OSA patients. We assessed risk of PE recurrence in relation to compliance with OSA therapy.

RESULTS:
Of 25,038 patients, 3,184 (13%) had OSA and 283 (1.1%) experienced PE. Frequency of PE in patients with and without OSA was 2.4% vs 0.9% (OR 2.51, 95% CI 1.9-3.3, p<.001). OSA was independently associated with increased risk of PE after adjusting for demographics and comorbidities (OR 1.44, 95% CI 1.07-1.9, p=0.017). Adjusted hospital mortality was increased in patients with PE (OR 2.88, 95% CI 1.7-4.9, p<.001), but not in patients with OSA (OR 0.98, 95% CI 0.7-1.4, p=.92). OSA was not a significant determining factor for mortality in PE patients (OR 0.56, 95% CI 0.1.1-2.78, p=0.47), adjusting for demographics, PE severity and Charlson comorbidity index. Adjusted risk of PE recurrence was greater in OSA compared to non-OSA patients (OR 2.21, 95% CI 1.05-4.68, p<0.04). The patients compliant with OSA therapy had lower rate of PE recurrence (16% versus 32%, P=NS).

CONCLUSIONS:
Although OSA significantly increases risk of acute PE occurrence and recurrences, related hospital mortality was not greater in OSA patients compared to those without OSA. OSA therapy might have a modifying effect on PE recurrence.

14. HEADACHES

Adverse childhood events

Headache. 2020 Feb 17. doi: 10.1111/head.13773.

Adverse Childhood Experiences (ACEs) and Headaches Among Children: A Cross-Sectional Analysis.

Mansuri F[1], Nash MC[1], Bakour C[1], Kip K[1].

OBJECTIVES:
This cross-sectional study examined the association between adverse childhood experiences (ACEs) and history of frequent headaches (including migraine) among children 3-17 years old using data from the 2016 and 2017 U.S. National Survey of Children's Health (NSCH).

BACKGROUND: ACEs include abuse (physical, emotional, or sexual), parental divorce, death, mental illness, or addiction, and are linked to higher morbidity and mortality in adulthood. A relationship between ACEs and headaches exists among adults, but studies examining the relationship among children are lacking. To our knowledge, no studies have examined the link among children using NSCH data.
METHODS:
The NSCH is a nationally representative survey of U.S. children's physical and emotional well-being aimed at understanding their health needs. Parental-reported information was collected on child history of headaches and 9 ACEs for the selected child. The survey collected information on 71,881 children in 2016 and 2017 out of which 61,565 were eligible for the study (age ≥3 years and not missing data on history headaches). Children with missing values for headache, ACEs, or covariates (n = 58,958) were excluded from the final analysis. We used multivariable logistic regression with survey weighting and adjusted for demographics and comorbidities (anxiety, depression, epilepsy, and brain injury) to examine the association between ACEs and headaches overall and stratified by gender. We further assessed the independent relationship between each ACE and headaches.

RESULTS:
In the current study, out of 61,656 children, 26,884 (48.6%) experienced at least 1 ACE and 3426 (6.5%) experienced 4+ ACEs. Overall, compared with children with no ACEs, the adjusted odds of headache were 1.34 times higher among children with 1 reported ACE (95% CI: 1.07, 1.68), 2.15 times higher among children with 2 ACEs (95% CI: 1.66, 2.80), 1.89 times higher among children with 3 ACEs (95% CI: 1.40, 2.53), and 3.40 times higher among children with 4+ ACEs (95% CI: 2.61, 4.43). Females with 3 and 4+ ACEs were somewhat more likely to report headaches compared to males with the same number of ACEs. Individually, no ACE was independently associated with history of headaches except for difficulty due to family's income (aOR = 2.46, 95% CI: 1.98, 3.06).

CONCLUSION:
Experiencing one or more ACEs vs none was associated with higher risk of headaches in children, and difficulty due to family's income was the only ACE independently associated with headaches. Our findings support results of other studies on ACEs and headache in young adults and suggest that adverse ACE-related health outcomes begin earlier than previously recognized. Additionally, struggling due to low income may represent a constellation of chronic stressors that independently contribute to poor health outcomes in childhood as compared to other individual ACEs. Future research should examine the importance of specific ACE clusters and stressors during childhood.

Trigger points

MRI in migraineurs: are there abnormalities in the area where the myofascial trigger points are palpable and in volume measurements?

Mariana Luiza da Silva Queiroz[1] Angélica da Silva Tenório[3] Débora Wanderley Villela[3,*,] , Daniella Araújo de Oliveira[3]
DOI: https://doi.org/10.1016/j.jbmt.2020.02.025

Introduction

Patients with migraine may present a higher quantity of myofascial trigger points (MTrP) and alterations in the cervical muscles when compared to non-migraineurs. The magnetic resonance imaging (MRI) is a robust method for the study of human soft tissues and could be useful to investigate these points.

Objectives

To identify the presence of MTrP in the descending fibers of the trapezius muscle in women with migraine and to quantify the muscle volume by MRI, correlating it with the headache characteristics.

Methods

A cross-sectional analytic study was conducted among 14 women, eight in migraine group, and six in without migraine group. The presence of MTrP was evaluated using Simons' criteria, and linolenic acid capsules subsequently marked the areas. MRI was performed with 1.5T, T1-weighted sequence, and T2 in the axial, sagittal, and coronal planes. The T1-weighted sequences were performed with and without gadolinium contrast.

Results

The T1-weighted image analysis with and without gadolinium did not show any signal alteration in the MTrP areas in both groups. The migraine group presented more MTrP in the trapezius muscle (MD [95%CI]= 1[1;3]; MD [95%CI]= 1[0;2] right and left side, respectively), and a smaller muscle volume (MD [95%CI]= -198.1[-338.7;-25.6], MD [95%CI]= -149.9[-325.05;-0.13] right and left side, respectively) than non-migraineurs. The migraine frequency presented a negative strong correlation with the trapezius volumes (r=-0.812; p=0.014).

Conclusion

Migraineurs present more MTrP and a smaller muscle volume than non-migraineurs. The trapezius volume is negative correlated with migraine frequency. MRI is not a suitable outcome measure for assessing MTrP.

Migraines seem to improve over time

Headache 2020 Feb 18

How Does Migraine Change After 10 Years? A Clinical Cohort Follow-Up Analysis

Edoardo Caronna [1 2], Victor José Gallardo [2], Elena Fonseca [1], Juan Bernardo Gómez-Galván [3], Alicia Alpuente [1 2], Marta Torres-Ferrus [1 2], Patricia Pozo-Rosich [1 2]

PMID: 32068897 DOI: 10.1111/head.13774

Objective: To describe the 10-year evolution of a cohort of migraine patients, focusing on prognostic factors of improvement.

Background: Migraine is one of the most prevalent and disabling diseases and migraineurs often want to know about the evolutionary timeline of their condition. Yet, data from longitudinal studies with a long-term follow-up is scarce.

Methods: This is a 10-year longitudinal study. In 2008, we recruited 1109 consecutive migraine patients who answered an initial survey. In 2018, we did a follow-up. We compared initial and final (after 10 years) data. A reduction ≥50% in Headache days/month was considered as improvement. A comparative study was carried out to identify predictors of improvement or no improvement.

Results: After 10 years, 380 patients completed the survey (34.3% of the initial cohort), 77.1% (293/380) were women; mean age 41.0 ± 10.6 years and 73.7% (280/380) had an initial diagnosis of episodic migraine (EM). After 10 years, 48.2% (183/380) of patients did not have a medical follow-up of their migraine; 47.4% (180/380) decreased ≥50% in frequency, which increased the proportion of EM (73.7% vs 87.4%) (P < .001) as compared to the initial results. Factors independently associated with improvement were: a baseline frequency >10 days/month (OR[95%]: 3.04 [1.89, 4.89]; P < .001), nonsmoking (2.13 [1.23, 3.67]; P = .006) and a medical follow-up for migraine (2.45 [1.54, 3.90]; P < .001). Additionally, after 10 years, we observed a reduction in the use of preventive treatment (48.7% vs 23.5%) and an increase in monotherapy (42.2% vs 72.7%) (P < .001).

Conclusion: After 10 years, in almost half of the patients who answered the survey, migraine improved. Other than the natural pathophysiology of migraine, having a medical follow-up and healthy habits such as nonsmoking were independent factors associated with improvement.

21. ADHESIVE CAPSULITIS

Frozen shoulder and tactile acuity

Laterality judgement and tactile acuity in patients with frozen shoulder: A cross-sectional study

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DOI: https://doi.org/10.1016/j.msksp.2020.102136

Highlights

- •Tactile acuity is reduced in subjects with FS over the affected shoulder.
- •Subject with FS have reduced tactile acuity compared to healthy controls.
- •Individuals with FS are less accurate and slower in a LRJT in the affected shoulder.
- •Further research is needed to unravel the role of central pain mechanisms in FS.

Abstract

Background

Disrupted tactile acuity and poor laterality judgement have been shown in several chronic musculoskeletal pain conditions. Whether they are impaired in people with frozen shoulder (FS) remains unknown.

Objectives

To determine whether there is impairment in tactile acuity and laterality judgement in subjects with FS.

Methods

Thirty-eight subjects with idiopathic FS and 38 sex and age-matched healthy controls were enrolled. The two-point discrimination threshold (TPDT) over the affected and unaffected shoulder of patients with FS and shoulder of healthy controls was evaluated. In addition, all participants performed a left/right judgment task (LRJT) Independent and dependent t-tests were used to compare group means. Pearson-product moment coefficient correlations between pain intensity and duration and LRJT and TPDT were calculated for the FS group.

Results

The TPDT over the affected shoulder was significantly increased compared to the unaffected shoulder (mean difference, 3.82 mm; 95% confidence interval [CI]:0.53, 7.10; p = .02) and controls (mean difference, 5.80 mm; 95% CI: 1.09, 10.52; p = .02). Patients with FS were less accurate (mean difference, 5.90%; 95% CI: 0.36, 11.43; p = .03) and slower (mean difference, −0.26 s; 95% CI: 0.06, 0.45; p = .01) responding to images of their affected shoulder compared to their unaffected shoulder. No associations were found between pain intensity and duration and either TPDT or laterality judgement.

Conclusions

Participants with FS demonstrated reduced tactile acuity and impaired laterality judgement over their affected shoulder compared to their unaffected shoulder. When compared to controls, subjects with FS showed reduced tactile acuity.

22 A. SHOULDER IMPINGMENT

Exercise helps subacromial pain

LITERATURE REVIEW
An Update of Systematic Reviews Examining the Effectiveness of Conservative Physical Therapy Interventions for Subacromial Shoulder Pain

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2019 **Volume:**50 **Issue:**3 **Pages:**131–141 **DOI:** 10.2519/jospt.2020.8498

Objective
To update a systematic review published in 2013 that focused on evaluating the effectiveness of interventions within the scope of physical therapy, including exercise, manual therapy, electrotherapy, and combined or multimodal approaches to managing shoulder pain.

Design
Umbrella review.

Literature Search
An electronic search of PubMed, Web of Science, and CINAHL was undertaken. Methodological quality was assessed using the AMSTAR (A MeaSurement Tool to Assess systematic Reviews) checklist for systematic reviews.

Study Selection Criteria
Nonsurgical treatments for subacromial shoulder pain.

Data Synthesis
Sixteen systematic reviews were retrieved. Results were summarized qualitatively.

Results
A strong recommendation can be made for exercise therapy as the first-line treatment to improve pain, mobility, and function in patients with subacromial shoulder pain. Manual therapy may be integrated, with a strong recommendation, as additional therapy. There was moderate evidence of no effect for other commonly prescribed interventions, such as laser therapy, extracorporeal shockwave therapy, pulsed electromagnetic energy, and ultrasound.

Conclusion
There is a growing body of evidence to support exercise therapy as an intervention for subacromial shoulder pain. Ongoing research is required to provide guidance on exercise type, dose, duration, and expected outcomes. A strong recommendation may be made regarding the inclusion of manual therapy in the initial treatment phase. *J Orthop Sports Phys Ther 2020;50(3):131–141. Epub 15 Nov 2019. doi:10.2519/jospt.2020.8498*

34. PATELLA

Adolescents PF pain

J Orthop Sports Phys Ther. 2020 Jan 6:1-26. doi: 10.2519/jospt.2020.8770.

Pain, Sports Participation, and Physical Function in 10-14 Year Olds With Patellofemoral Pain and Osgood Schlatter: A Matched Cross-Sectional Study of 252 Adolescents.

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STUDY DESIGN:
Cross-sectional study.

BACKGROUND:
Patellofemoral pain (PFP) and Osgood-Schlatter disease (OSD) are common in adolescents, but we lack knowledge on these conditions and their impact in young adolescents (<15 years).

OBJECTIVES:
Compare pain, physical activity, quality of life, strength and knee function between adolescents with PFP or OSD, compared to pain-free controls.

METHODS:
Self-report questionnaires were used to describe pain, physical activity, knee function, and quality of life in participants with PFP (N=151), OSD (N=51), and pain-free controls (N=50) aged between 10 and 14 years. Hip and knee strength were measured by handheld dynamometry. Physical activity levels were measured using wearable accelerometers.

RESULTS:
Adolescents were highly active (accumulating >120min vigorous physical activity per day), with no differences between OSD, PFP, or controls. Adolescents with PFP or OSD scored 23-57 points lower (P<0.001) in the Knee Osteoarthritis Outcome Score (KOOS) subscales compared with controls, with the lowest scores in the 'sport & recreation' and 'quality of life'. Adolescents with OSD had lower knee extension strength compared to controls (P<0.05, effect size (ES) 1.25). Adolescents with PFP had lower hip extension strength compared to controls (P<0.05, ES 0.73).

CONCLUSION:
Adolescents with PFP or OSD are characterized by high physical activity levels, despite reporting long-standing knee pain and impaired knee function that impacts their sports participation and quality of life. Clinicians treating adolescents with PFP or OSD may use these findings to target treatment to the most common deficits to restore sports-related function and sports participation. *J Orthop Sports Phys Ther, Epub 6 Jan 2020. doi:10.2519/jospt.2020.8770*.

48 A. STM

Dosing STM in Fibromyalgia

Is There a Dose Response Relationship Between Soft Tissue Manual Therapy and Clinical Outcomes in Fibromyalgia?

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Background

Current clinical guidelines do not support the use of manual therapy (MT) interventions for Fibromyalgia (FM) patients, despite evidence of positive biochemical, mechanical and psychological effects, and the popularity of hands-on treatments amongst patients. An optimal dose for MT has not been established; this may explain the discrepancies found within the published literature. The aim of this systematic review was to determine whether there is a dose response relationship for MT leading to improvements in core domains of FM symptomology; Pain, Mood, Sleep, Global Measure of Impact (Functional Status & Quality of Life).

Methods

We searched six databases from 1990 to January 2018; studies were evaluated using the PEDro scale. Within-group (ES*d*) and between-group (ES*g*) Effect Sizes were calculated.

Results

We identified and screened 4012 articles, 12 articles were critically appraised. Overall, there is moderate evidence that MT has positive effects on the four clinical outcomes investigated. However, there was no consistent dose response relationship observed across all studies.

Conclusions

A dose of approximately 45 minutes MT, three to five times per week, for three to five weeks, totalling 11 hours 15 mins, should be considered a baseline generic protocol for treatment delivery and research trials. Further research is necessary to confirm domain specific, or patient specific optimal doses. Moderator variables such as treatment time, frequency, duration; and MT type also need to be explored to ensure optimal delivery of MT in future research and clinical care provision.

59. PAIN

Neuropathic pain

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Biomarkers for predicting central neuropathic pain occurrence and severity after spinal cord injury: results of a long-term longitudinal study.

Gruener H[1], Zeilig G[2,3], Gaidukov E[2], Rachamim-Katz O[2], Ringler E[2], Blumen N[2,3], Engel-Haber E[2], Defrin R[1].

Central neuropathic pain (CNP) after spinal cord injury (SCI) is debilitating and immensely impacts the individual. Central neuropathic pain is relatively resistant to treatment administered after it develops, perhaps owing to irreversible pathological processes.

Although preemptive treatment may overcome this shortcoming, its administration necessitates screening patients with clinically relevant biomarkers that could predict CNP early post-SCI. The aim was to search for such biomarkers by measuring pronociceptive and for the first time, antinociceptive indices early post-SCI.

Participants were 47 patients with acute SCI and 20 healthy controls. Pain adaptation, conditioned pain modulation (CPM), pain temporal summation, wind-up pain, and allodynia were measured above, at, and below the injury level, at 1.5 months after SCI. Healthy control were tested at corresponding regions. Spinal cord injury patients were monitored for CNP emergence and characteristics at 3 to 4, 6 to 7, and 24 months post-SCI.

Central neuropathic pain prevalence was 57.4%. Central neuropathic pain severity, quality, and aggravating factors but not location somewhat changed over 24 months. Spinal cord injury patients who eventually developed CNP exhibited early, reduced at-level pain adaptation and CPM magnitudes than those who did not. The best predictor for CNP emergence at 3 to 4 and 7 to 8 months was at-level pain adaptation with odds ratios of 3.17 and 2.83, respectively (~77% probability) and a cutoff value with 90% sensitivity. Allodynia and at-level CPM predicted CNP severity at 3 to 4 and 24 months, respectively.

Reduced pain inhibition capacity precedes, and may lead to CNP. At-level pain adaptation is an early CNP biomarker with which individuals at risk can be identified to initiate preemptive treatment.

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