

ABSTRACTS

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1. LUMBAR SPINE

Spinal stenosis

Exploratory Analysis of Clinical Predictors of Outcomes of Nonsurgical Treatment in Patients With Lumbar Spinal Stenosis

Michael J Schneider, DC, PhD, Lauren Terhorst, PhD, Donald Murphy, DC, Joel M. Stevans, DC, Rachel Hoffman, DPT, Jerrilyn A Cambron, DC, PhD

Abstract

Objective

The purpose of this study was to explore potential baseline physical examination and demographic predictors of clinical outcomes in patients with lumbar spinal stenosis.

Methods

This was a secondary analysis of data obtained from a pilot randomized controlled trial. Primary and secondary outcome measures were the Swiss Spinal Stenosis (SSS) Questionnaire and visual analog scale (VAS) for leg pain. Multiple regression models were used to assess 2 different outcomes: SSS at completion of care and VAS at completion of care. Separate regression models were built for each of the 2 outcomes to identify the best subset of variables that predicted improvement. Predictors with a significant contribution were retained in a final “best” model.

Results

Three variables were identified as having an association with SSS score at completion of care: baseline SSS score, qualitative description of leg pain, and age (adjusted $R^2 = 33.2$). Four variables were identified as having an association with VAS score at completion of care: baseline VAS score, qualitative description of leg pain, body mass index, and age (adjusted $R^2 = 38.3$).

Conclusion

This study provides preliminary evidence supporting an association between certain baseline characteristics and nonsurgical clinical outcomes in patients with lumbar spinal stenosis.

Key Indexing Terms: Spinal Stenosis, Manipulation, Chiropractic, Low Back Pain, Complementary Therapies, Lumbar Vertebrae, Radiculopathy

2. LBP

Sympathetic dysfunction

Clin J Pain. 2016 Mar;32(3):226-31. doi: 10.1097/AJP.0000000000000250.

Sympathetic Dysfunction in Patients With Chronic Low Back Pain and Failed Back Surgery Syndrome.

El-Badawy MA¹, El Mikkawy DM.
Author information

Abstract

BACKGROUND:

Chronic low back pain (CLBP) is defined as pain that persists longer than 12 weeks and is often attributed to degenerative or traumatic conditions of the spine. Failed back surgery syndrome is a condition in which chronic pain persists after spinal surgery. Electrodiagnostic studies can be used to confirm the diagnosis of lumbosacral radiculopathy, but other diagnostic methods are often needed to assess sympathetic nervous system dysfunction.

OBJECTIVES:

The aim of this study was to investigate the affection of sympathetic skin response (SSR) in cases of chronic low back pain (LBP) and failed back surgery syndrome (FBSS) and to assess the association of SSR abnormalities with perceived functional disability and pain among these patients.

METHODOLOGY:

Twenty patients with CLBP and 10 patients with failed FBSS who fulfilled the inclusion criteria were recruited to the present study. All cases had back, leg, or back and leg pain of at least 3-month duration or following spinal surgery. The control group consists of 10 healthy participants matched in age and sex. Electrophysiologic nerve conduction studies and SSR recording were applied on the symptomatic and normal side in study cases and on both sides in the control group. Pain intensity was analyzed by the visual analogue scale (VAS) and perceived functional disability was assessed with the Oswestry disability index (ODI).

CONCLUSIONS:

It was concluded that the sympathetic nervous system is affected in CLBP and FBSS patients with abnormalities in SSR and that the dysfunction of sympathetic nervous system may contribute to the intensity and chronicity of pain in these groups of patients. Moreover, a strong association was found between SSR and functional disabilities in these patients.

PMID: 25968450

Smoking and LBP

Clin J Pain. 2016 Mar;32(3):232-7. doi: 10.1097/AJP.0000000000000245.

Role of Stress and Smoking as Modifiable Risk Factors for Nonpersistent and Persistent Back Pain in Women.

Schmelzer AC¹, Salt E, Wiggins A, Crofford LJ, Bush H, Mannino DM.
Author information

Abstract

OBJECTIVE:

The purpose of this study was to examine the association between smoking and stress with nonpersistent and persistent back pain.

MATERIALS AND METHODS:

Participants included 3703 women who took part in the Kentucky Women's Health Registry in 2008 and 2011. Multivariate logistic regression modeling was used to examine whether smoking status and stress levels were predictive of nonpersistent and persistent back pain, controlling for sociodemographic characteristics.

RESULTS:

Stress level was associated with both nonpersistent and persistent back pain, whereas smoking was associated with only persistent back pain. Current smokers were 1.5 times more likely to report persistent back pain compared with never smokers, controlling for age, race, body mass index, educational attainment, and employment status. Women experiencing large or overwhelming amounts of stress were 1.8 times more likely to have nonpersistent back pain and 1.6 times more likely to report persistent back pain, compared with women experiencing small amounts of stress.

DISCUSSION:

This study further substantiates the findings of prior research that describes a significant relationship between back pain, stress, and smoking. Understanding the role of modifiable risk factors (ie, smoking and stress) and their impact on back pain provides an opportunity to offer a comprehensive and tailored treatment plan.

PMID:25882868

Subcutaneous stimulation

Neuromodulation. 2016 Feb;19(2):171-8. doi: 10.1111/ner.12385.

Subcutaneous Stimulation as ADD-ON Therapy to Spinal Cord Stimulation Is Effective in Treating Low Back Pain in Patients With Failed Back Surgery Syndrome: A Multicenter Randomized Controlled Trial.

van Gorp EJ¹, Teernstra OP², Gültuna I¹, Hamm-Faber T¹, Bürger K³, Schapendonk R⁴, Willem Kallewaard J⁵, Spincemaille G⁶, Vonhögen LH⁷, Hendriks JC⁸, Vissers KC⁹.

Author information

Abstract

OBJECTIVE:

Suppression of back pain with traditional spinal cord stimulation (SCS) in failed back surgery syndrome patients is often insufficient. The objective of this study was to investigate the efficacy of subcutaneous stimulation (SubQ) as ADD-ON therapy to SCS in treating back pain in failed back surgery syndrome patients.

MATERIALS AND METHODS:

Patients with a minimal pain score of 50 on a 100 mm visual analog scale for both leg and back pain were eligible. If pain reduction after trial SCS was $\geq 50\%$ for the leg but $< 50\%$ for the back, patients received additional SubQ leads and were randomized in a 1:1 ratio in a study arm with subcutaneous leads switched on (SubQ ADD-ON) and an arm with subcutaneous leads switched off (Control). The primary outcome was the percentage of the patients, at three months since implantation, with $\geq 50\%$ reduction of back pain.

RESULTS:

A total of 97 patients were treated with SCS for leg and back pain. Of these, 52 patients were randomized and allocated to the Control group (n = 24) or to the SubQ ADD-ON group (n = 28). The percentage of patients with $\geq 50\%$ reduction of back pain was significantly higher in the SubQ ADD-ON group (42.9%) compared to the Control group (4.2%). Mean visual analog scale for back pain, at three months, was a statistically significant 28.1 mm lower in the SubQ ADD-ON group compared to the Control group.

CONCLUSION:

Subcutaneous stimulation as an ADD-ON therapy to SCS is effective in treating back pain in failed back surgery syndrome patients where SCS is only effective for pain in the leg.

KEYWORDS: PNFS; chronic low back pain; failed back surgery syndrome; spinal cord stimulation; subcutaneous stimulation

PMID:26890014

Ageing and obesity

Ageing and Obesity indices influences the Tactile Spatial Acuity of the Low Back Regions: A cross-sectional study

Carrie Falling Ramakrishnan Mani, BPhy MPhy PhD

Highlights

- TPDT reference values for the low back region have been reported.
- Age and obesity indices are associated with low back TPDT estimates.
- Effect of age on TPDT was significantly influenced by obesity indices.
- TPDT side differences were observed only in individuals aged between 50-59years.
- Lower limb dominance was not associated with low back TPDT estimates.

Abstract**Background and aims**

Two-point discrimination threshold (TPDT) is increased in individuals with chronic low back pain. TPDT reference values and their determinants are required for clinical applications. Therefore, the aims of this research are to establish reference values for TPDT of the low back regions in healthy individuals, stratified for age, and to investigate the associations of demographic and anthropomorphic variables with TPDT.

Methods

Healthy individuals (n=79) across four decades (Group-I:18-29; Group-II:30-39; Group-III:40-49; and Group-IV:50-59years) were recruited. A mechanical calliper tool was used to determine the low back TPDT (mm) using an adaptive staircase method. Descriptive statistics were calculated for TPDT for each age group. Paired t-tests ($p \leq 0.05$) were used to assess within group differences in TPDT between body sides. Univariate and weighted least squared linear regression analyses were performed to investigate associations between TPDT estimates and demographics, and body mass index (BMI), waist hip ratio(WHR).

Results

Mean(SD)age=38.3(12.2); 55 female; and 73 right lower limb dominant. Mean(SD) TPDT threshold for all age groups: right=67.3(15.6), and left=65.7(15.4). No significant differences between left and right sides of the low back except in group-IV (mean difference:5.6[0.7-10.5]; $P=0.028$). A total of 18% of TPDT variance (adjusted $R^2=0.183$; $\beta=0.6$; $p \leq 0.001$) of low back regions was explained by age with BMI and WHR weighted independently.

Conclusions

Age, BMI, and WHR were independently associated with TPDT of the low back, and the influence of age was significantly influenced by obesity indices.

Keywords: Reference values, Tactile Spatial acuity, Lumbar spine, Obesity

3. DISC

Disc simulation

Eur Spine J. 2016 Feb 2.

A new dynamic six degrees of freedom disc-loading simulator allows to provoke disc damage and herniation.

Wilke HJ¹, Kienle A², Maile S³, Rasche V^{4,5}, Berger-Roscher N⁶.

Author information

Abstract

PURPOSE:

The cause of disc herniation is not well understood yet. It is assumed that heavy lifting and extreme postures can cause small injuries starting either in the inner annulus or from the outside close to the endplate. Such injuries are accumulated over years until its structure is weakened and finally a single loading event leads to a sudden failure of the last few intact lamellae. This paper describes a novel, custom-developed dynamic 6-DOF disc-loading simulator that allows complex loading to provoke such disc damage and herniations.

METHODS:

The machine's axes are driven by six independent servomotors providing high loads (10 kN axial compression, 2 kN shear, 100 Nm torque) up to 5 Hz. A positional accuracy test was conducted to validate the machine. Subsequently, initial experiments with lumbar ovine motion segments under complex loading were performed. After testing, the discs were examined in an ultra-high field MRI (11.7 T). A three-dimensional reconstruction was performed to visualise the internal disc lesions.

RESULTS:

Validation tests demonstrated positioning with an accuracy of $\leq 0.08^\circ / \leq 0.026$ mm at 0.5 Hz and $\leq 0.27^\circ / \leq 0.048$ mm at 3.0 Hz with amplitudes of $\pm 17^\circ / \pm 2$ mm. Typical failure patterns and herniations could be provoked with complex asymmetrical loading protocols. Loading with axial compression, flexion, lateral bending and torsion lead in 8 specimens to 4 herniated discs, two protrusions and two delaminations. All disc failures occurred in the posterior region of the disc.

CONCLUSION:

This new dynamic disc-loading simulator has proven to be able to apply complex motion combinations and allows to create artificial lesions in the disc with complex loading protocols. The aim of further tests is to better understand the mechanisms by which disc failure occurs at the microstructural level under different loading conditions. Visualisation with ultra-high field MRI at different time points is a promising method to investigate the gradual development of such lesions, which may finally lead to disc failure. These kinds of experiments will help to better investigate the mechanical failure of discs to provide new insights into the initiation of intervertebral disc herniation. This device will also serve for many other applications in spine biomechanics research.

KEYWORDS: 6-DOF; Complex loading; Disc-loading simulator; Dynamic spine tester; Endplate junction failure; Herniation; Intervertebral disc

PMID: 26838335

5. SURGERY

Impact of surgery

Spine J. 2016 Feb 2. pii: S1529-9430(16)00290-4. doi: 10.1016/j.spinee.2016.01.180.

What level of pain are patients happy to live with after surgery for lumbar degenerative disorders?

Fekete TF¹, Haschtmann D¹, Kleinstück FS¹, Porchet F¹, Jeszenszky D¹, Mannion A².

Author information

Abstract

BACKGROUND CONTEXT: A new approach to the interpretation of treatment success comprises the reporting of the proportion of patients whose symptoms have reduced to an acceptable level, i.e., who have reached a satisfactory state.

PURPOSE: We sought to evaluate the acceptable level of pain in patients after surgery for painful degenerative lumbar disorders.

DESIGN: Cross-sectional study of outcome data, 12 months postoperatively.

PATIENT SAMPLE: A total of 6943 patients registered in our in-house Spine Outcomes Registry, nested within the Eurospine "Spine Tango" registry, undergoing surgery for degenerative disorders of the lumbar spine. (disc herniation (DH; N=1608), spinal stenosis (SS; N=1782), degenerative spondylolisthesis (DS; N=1000), degenerative deformity (DegDef; N=612) and degenerative disc/segment disease (DegSeg; N=473); 1468 degenerative but no specific category).

OUTCOME MEASURES: The Core Outcome Measures Index. The specific items used for this analysis were the two 0-10 graphic rating scales for back and leg pain and the symptom-specific well-being (SSWB) item "if you had to spend the rest of your life with the symptoms you have now, how would you feel about it?", with a 5-point response scale from "very satisfied" to "very dissatisfied".

METHODS: The COMI was completed before and at 3, 12, 24 months after surgery. Answers on the SSWB were dichotomised and used as the external criterion in receiver operating characteristics (ROC) analysis to derive the cut-off score for pain (the higher of back and leg pain) indicating being at least "somewhat satisfied" with the symptom state 12 months postoperatively. Sensitivity analyses were carried out for various subgroups (sex, age, pathology, comorbidity status, smoking status, preoperative pain level, previous surgery, type of health insurance, time of followup (3 and 24 mo)). The study was funded by the Schulthess Klinik Research Funds; there were no potential conflict of interest-associated biases for any of the authors.

RESULTS: 6248/6943 (90%) patients returned a 12-mo questionnaire of which 47% reported being at least somewhat satisfied with their symptom state (52% (DH), 45% (SS), 53% (DS), 44% (DegDef), 45% (DegSeg), 44% (others)). The areas under the curve for the ROCs were 0.89-0.91 for the different pathologies, indicating a good ability of the pain score to discriminate between being in a satisfactory state or not. The cut-off indicating a satisfactory symptom state was ≤ 2 points for DH (sensitivity 76%, specificity 88%), ≤ 3 points for all other pathologies (sens 79-84%, spec 81-85%). The sensitivity analyses revealed ≤ 3 points to be the most common cut off for the various sub-groups.

CONCLUSION: Most spine interventions decrease pain but rarely do they totally eliminate it. Reporting of the % patients achieving a pain score equivalent to the "acceptable symptom state" may represent a more stringent target for denoting surgical success in the treatment of painful spinal disorders. For DH, this is ≤ 2 , but for other degenerative pathologies ≤ 3 .

PMID: 26850172

Fusions and adjacent segments

Clin Spine Surg. 2016 Feb;29(1):21-9. doi: 10.1097/BSD.0000000000000328.

Adjacent Segment Degeneration Versus Disease After Lumbar Spine Fusion for Degenerative Pathology: A Systematic Review With Meta-Analysis of the Literature.

Zhang C¹, Berven SH, Fortin M, Weber MH.
Author information

Abstract

STUDY DESIGN:

A systematic review.

OBJECTIVE:

The purpose of this study was to review the published literature to estimate rates and identify risk factors for adjacent segment degeneration (ASDeg) and adjacent segment disease (ASDis) after lumbar fusion.

SUMMARY OF BACKGROUND DATA:

Arthrodesis remains a common intervention for the surgical treatment of degenerative spinal disease. Clinical studies have demonstrated variability in the rates of adjacent segment pathology after lumbar fusion.

METHODS:

This study was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Symptoms of ASDis were distinguished and defined by the need for a revision surgery procedure to address adjacent level pathology. We searched MEDLINE, EMBASE, Cochrane Library, and CINAHL databases. Extracted data included average patient age, average time to follow-up, type of intervention, potential risk factors, and ASDeg and ASDis incidence. Funnel and forest plots were used to describe heterogeneity and meta-regression to estimate pooled incidence of ASDeg and ASDis.

RESULTS:

A total of 31 articles with 4206 patients were included for analysis. Combining all extractable data, the overall pooled incidence of ASDeg was 5.9% per year (95% CI, 4.8%, 7.2%), and ASDis was 1.8% (95% CI, 1.3%, 2.4%) per year. The incidence of ASDeg is higher with more motion segments. Sex, age, segmental sagittal alignment, fusion methods, and instrumentation were not associated with an increased risk of ASDeg or ASDis. Radiographic ASDeg did not show strong correlation with clinical outcomes.

CONCLUSIONS:

The prevalence of ASDeg and ASDis has been variably reported in the literature, and fusion length is the factor most significantly associated with adjacent segment pathology. In guiding surgical strategies to avoid adjacent segment pathology, limiting the number of levels fused may have a greater impact than changes in fusion strategies.

PMID: 26836484

7. PELVIC ORGANS/WOMAN'S HEALTH

Mortality and artificial insemination

Obstet Gynecol. 2016 Mar;127(3):527-34. doi: 10.1097/AOG.0000000000001292.

Severe Maternal Morbidity and the Use of Assisted Reproductive Technology in Massachusetts.

Belanoff C¹, Declercq ER, Diop H, Gopal D, Kotelchuck M, Luke B, Nguyen T, Stern JE.
Author information

Abstract

OBJECTIVE:

To assess whether risk of severe maternal morbidity at delivery differed for women who conceived using assisted reproductive technology (ART), those with indicators of subfertility but no ART ("subfertile"), and those who had neither ART nor subfertility ("fertile").

METHODS:

This retrospective cohort study was part of the larger Massachusetts Outcomes Study of Assisted Reproductive Technology. To construct the Massachusetts Outcomes Study of Assisted Reproductive Technology database and identify ART deliveries, we linked ART treatment records to birth certificates and maternal and infant hospitalization records occurring in Massachusetts between 2004 and 2010. An algorithm of International Classification of Diseases, 9th Revision, Clinical Modification diagnosis and procedure codes identified severe maternal morbidity. We used logistic generalized estimating equations to estimate odds of severe maternal morbidity associated with fertility status, adjusting for maternal demographic and health factors and gestational age, stratifying on plurality and method of delivery.

RESULTS:

The prevalence of severe maternal morbidity among this population (n=458,918) was 1.16%. The overall, crude prevalences of severe maternal morbidity among fertile, subfertile, and ART deliveries were 1.09%, 1.44%, and 3.14%, respectively. The most common indicator of severe maternal morbidity was blood transfusion. In multivariable analyses, among singletons, ART was associated with increased odds of severe maternal morbidity compared with both fertile (vaginal: adjusted odds ratio [OR] 2.27, 95% confidence interval [CI] 1.78-2.88; cesarean: adjusted OR 1.67, 95% CI 1.40-1.98, respectively) and subfertile (vaginal: adjusted OR 1.97, 95% CI 1.30-3.00; cesarean: adjusted OR 1.75, 95% CI 1.30-2.35, respectively) deliveries. Among twins, only cesarean ART deliveries had significantly greater severe maternal morbidity compared with cesarean fertile deliveries (adjusted OR 1.48, 95% CI 1.14-1.93).

CONCLUSION:

Women who conceive through ART may have elevated risk of severe maternal morbidity at delivery, largely indicated by blood transfusion, even when compared with a subfertile population. Further research should elucidate mechanisms underlying this risk.

PMID: 26855105

Menstruation and depression

Pain Pract. 2016 Feb 20. doi: 10.1111/papr.12412.

Effects of Flexibility in Coping with Menstrual Pain on Depressive Symptoms.

Kato T¹.

Author information

Abstract

Coping flexibility refers to the ability to discontinue an ineffective coping strategy and replace it with a more effective alternative. The coping flexibility hypothesis (CFH) predicts that more flexible coping will produce more adaptive outcomes. This study tested CFH validity among young Japanese women with menstrual pain. A total of 186 college students, who reported menstrual pain as being the most frequent pain they suffered over the past year, completed questionnaires related to coping flexibility and strategies for dealing with menstrual pain. Additionally, they reported on later depressive symptoms experienced during menstruation. A hierarchical multiple regression analysis showed that menstrual pain coping flexibility was significantly associated with reduced depressive symptoms during menstruation, even after controlling for the effects of menstrual pain intensity and coping strategies. Thus, the CFH was supported by the data obtained from menstrual pain sufferers in college.

KEYWORDS: chronic pain; coping flexibility; depressive symptoms; dysmenorrhea; menstrual pain

PMID: 26895743

8. VISCERA

Dairy health

Am J Clin Nutr. 2016 Feb 24. pii: ajcn118406.

Dairy consumption in association with weight change and risk of becoming overweight or obese in middle-aged and older women: a prospective cohort study.

Rautiainen S¹, Wang L², Lee IM³, Manson JE³, Buring JE³, Sesso HD⁴.
Author information

Abstract

BACKGROUND:

Studies have reported inconsistent findings on the association between dairy product intake and weight change and obesity. Only a few prospective studies have investigated the role of dairy consumption in both weight change and risk of becoming overweight or obese and whether these associations depend on the initial body weight.

OBJECTIVE:

We prospectively investigated how dairy product intake was associated with weight change and risk of becoming overweight or obese in initially normal-weight women.

DESIGN:

We studied 18,438 women aged ≥ 45 y from the Women's Health Study who were free of cardiovascular disease, cancer, and diabetes and had initial body mass index (BMI; in kg/m²) from 18.5 to <25 at baseline. Dairy intake was assessed with the use of a 131-item food-frequency questionnaire. Women self-reported body weight along with obesity-related risk factors on baseline and annual follow-up questionnaires. At each follow-up time, women were categorized as normal weight (BMI: 18.5 to <25), overweight (BMI: 25 to <30), or obese (BMI ≥ 30).

RESULTS:

During a mean follow-up of 11.2 y, 8238 women became overweight or obese. Multivariable-adjusted mean \pm SD changes in body weight during the follow-up (18 y) were 1.90 ± 0.09 , 1.88 ± 0.08 , 1.86 ± 0.09 , 1.82 ± 0.09 , and 1.65 ± 0.09 kg in quintiles 1-5 of total dairy intake, respectively (P-trend = 0.003). Greater intake of high-fat dairy products, but not intake of low-fat dairy products, was associated with less weight gain (P-trend = 0.004). In multivariable-adjusted analyses, lower risk of becoming overweight or obese was observed in the highest quintile of high-fat dairy product intake (HR: 0.92, 95% CI: 0.86, 0.99). Dietary or supplemental calcium or vitamin D was not associated with risk of becoming overweight or obese.

CONCLUSION:

Greater consumption of total dairy products may be of importance in the prevention of weight gain in middle-aged and elderly women who are initially normal weight.

KEYWORDS: cohort; dairy; obesity; overweight; weight
PMID: 26912496

Colon content

Neurogastroenterol Motil. 2016 Feb 12. doi: 10.1111/nmo.12782.

Colonic content in health and its relation to functional gut symptoms.

Bendezú RA^{1,2}, Barba E^{1,2}, Burri E¹, Cisternas D¹, Accarino A^{1,2}, Quiroga S³, Monclus E⁴, Navazo I⁴, Malagelada JR^{1,2}, Azpiroz F^{1,2}.

Author information

Abstract

BACKGROUND:

Gut content may be determinant in the generation of digestive symptoms, particularly in patients with impaired gut function and hypersensitivity. Since the relation of intraluminal gas to symptoms is only partial, we hypothesized that non-gaseous component may play a decisive role.

METHODS:

Abdominal computed tomography scans were evaluated in healthy subjects during fasting and after a meal (n = 15) and in patients with functional gut disorders during basal conditions (when they were feeling well) and during an episode of abdominal distension (n = 15). Colonic content and distribution were measured by an original analysis program.

KEY RESULTS:

In healthy subjects both gaseous (87 ± 24 mL) and non-gaseous colonic content (714 ± 34 mL) were uniformly distributed along the colon. In the early postprandial period gas volume increased (by 46 ± 23 mL), but non-gaseous content did not, although a partial caudad displacement from the descending to the pelvic colon was observed. No differences in colonic content were detected between patients and healthy subjects. Symptoms were associated with discrete increments in gas volume. However, no consistent differences in non-gaseous content were detected in patients between asymptomatic periods and during episodes of abdominal distension.

CONCLUSIONS & INFERENCES:

In patients with functional gut disorders, abdominal distension is not related to changes in non-gaseous colonic content. Hence, other factors, such as intestinal hypersensitivity and poor tolerance of small increases in luminal gas may be involved.

KEYWORDS: abdominal distension; colonic content; food ingestion; functional gut disorders; intestinal gas

PMID: 26871593

Constipation**Conventional treatment of functional constipation has a positive impact on the behavioural difficulties of children with and without faecal incontinence**

Acta Paediatrica, 02/24/2016 Modin L, et al.

This study evaluated changes in behavioural difficulties in childhood with functional constipation (FC) with and without faecal incontinence, based on treatment outcomes. The findings indicate that conventional treatment of FC had a positive impact on behavioural difficulties in constipated children with and without faecal incontinence. This study highlights the importance of proactive detection and treatment of FC in paediatric patients.

Methods

- Children aged five to 16 years who fulfilled the Rome III criteria for FC received conventional treatment.
- The Strength and Difficulties Questionnaire was completed at inclusion and at the 12-month follow up.

Results

- The authors included 116 children.
- The behaviour scores decreased in successfully treated boys (10.3 versus 7.9; $p < 0.001$) and girls (10.0 versus 7.4; $p = 0.0001$) with and without faecal incontinence.
- There was no decrease in the behaviour scores in children with unsuccessful outcomes.
- Unsuccessfully treated boys had significantly higher behaviour scores than successfully treated boys at inclusion (13.2 versus 10.3; $p = 0.006$) and after 12 months (11.4 versus 7.9; $p = 0.02$).
- No difference was found between unsuccessfully treated and successfully treated girls at inclusion (10.5 versus 10.0; $p = 0.77$) or after 12 months (10.3 versus 7.4; $p = 0.18$).

12 A. WHIPLASH

Changes in whiplash disorder

Pain Pract. 2016 Feb 23. doi: 10.1111/papr.12439.

Abnormal Pain Response to Visual Feedback During Cervical Movements in Chronic Whiplash: An Experimental Study.

De Kooning M^{1,2}, Daenen L¹, Verhelpen S³, Don S^{1,4}, Voogt L^{1,4}, Roussel N^{1,5}, Ickmans K¹, Van Loo M⁶, Cras P^{3,7}, Nijs J¹.

Author information

Abstract

BACKGROUND:

Whiplash-associated disorders (WAD) are a debilitating condition. In chronic WAD, sensorimotor incongruence exacerbates symptoms. Sensorimotor incongruence occurs when somatosensory input and predicted motor output are in conflict, which can trigger pain. On the other hand, there is evidence that visual feedback can decrease pain in certain chronic pain conditions. Therefore, the aim of this study was to examine the effect of visual feedback and sensorimotor incongruence on pain thresholds in chronic WAD.

METHODS:

Sixty-four participants (healthy controls and patients with chronic WAD) were subjected to six experimental conditions. Participants watched correct real-time or modified visual feedback of the neck or hand (without movement as well as during repetitive neck lateroflexion). Sensorimotor incongruence was induced by manipulating visual feedback. Pressure pain thresholds were measured at baseline and during each condition.

RESULTS:

Marked between-group differences were observed. Visual feedback of the neck-correct or modified-did not influence pain thresholds in chronic WAD. In contrast, healthy controls had significantly higher pain thresholds when provided with the correct or modified visual feedback. When a movement of the neck was added during visual feedback, patients with chronic WAD showed no significant difference in pain thresholds, while an increase in pain thresholds was found in the healthy control group.

CONCLUSION:

In contrast to the healthy controls, visual feedback and sensorimotor incongruence did not alter pain thresholds in patients with chronic WAD. These findings suggest an abnormal pain response to visual feedback and somatosensory incongruence as well as failing mechanisms of pain inhibition in chronic WAD.

KEYWORDS: chronic whiplash-associated disorders; pain modulation; pressure pain threshold; sensorimotor incongruence; visual feedback

PMID: 26913494

13. CRANIUM/TMJ

Clinching

Oral Dis. 2016 Feb 23. doi: 10.1111/odi.12465.

Altered neural activation pattern during teeth clenching in temporomandibular disorders.

He S¹, Li F², Gu T¹, Liu Y¹, Zou S¹, Huang X², Lui S², Gong Q², Chen S¹.

Author information

Abstract

OBJECTIVE:

The aim was to explore the neural activations during teeth clenching in TMDs patients pre- and post-treatment.

SUBJECTS AND METHODS:

Thirty TMDs patients and twenty controls underwent clinical evaluations and functional magnetic resonance imaging with a teeth clenching task. Eleven patients received repeat evaluation and imaging after wearing a stabilization splint for three months.

RESULTS During teeth clench, the TMDs patients showed decreased positive activity in the left precentral gyrus, right and left inferior temporal gyrus and left cerebellum and increased negative activations in the right medial prefrontal cortex ($P < 0.05$ after AlphaSim correction). The 11 TMDs patients after treatment showed a return to normal neural activity in these areas. No brain areas in TMDs patients showed differences in activation after treatment compared with the controls, except for an increase in activation in the right cerebellum in the 11 TMDs patients ($P < 0.05$ after AlphaSim correction).

CONCLUSION Decreased activations in cerebral areas associated with motor and cognitive functions in TMDs patients during teeth clenching were observed. Normalized activations of these areas happened in patients after routine treatment. These findings may facilitate the understanding of TMDs pathogenesis and the therapeutic mechanisms of the stabilization splint.

KEYWORDS: default mode network; functional magnetic resonance imaging; stabilization splints; teeth clenching; temporomandibular disorders

PMID: 26913995

Thermal changes

J Oral Rehabil. 2016 Feb 12. doi: 10.1111/joor.12386.

Reduced thermal threshold in patients with Temporomandibular Disorders.

Carvalho GF¹, Chaves TC², Florencio LL¹, Dach F², Bigal ME³, Bevilaqua-Grossi D¹.
Author information

Abstract

BACKGROUND:

Many studies have demonstrated the presence of somatosensory modulation changes at different sites in patients with temporomandibular disorders (TMDs) using different modalities. However, the neck area, a well-know condition related to TMD, remains unexplored.

OBJECTIVE:

To assess the thermal pain threshold in patients with TMD and controls at cephalic and extra-cephalic areas, including the neck.

METHODS:

Twenty female patients with TMDs diagnosed by the Research Diagnostic Criteria for TMD (RDC/TMD) and twenty age-matched controls underwent a first interview about neck pain and disability (NDI questionnaire). A blinded evaluator assessed the thermal pain threshold for cold (CPT) and heat (HPT) stimuli in accordance with an ascending method of limits of the Quantitative Sensory Testing at the following sites: periorbital, masseter, cervical posterior and ventral forearm. The groups were compared using a t-test with $\alpha = 5\%$.

RESULTS:

Patients with TMDs reported pain at higher temperature for cold stimuli in all sites ($P < 0.05$) and at lower temperature for heat stimuli in the right periorbital site ($P < 0.05$) than controls. Pain and disability due to this symptom were reported more often in the TMD group ($P < 0.05$).

CONCLUSION:

Patients with TMD have pain modulation changes in the neck area as well, especially for cold stimuli, associated with higher disability and a higher report of neck pain than controls. These findings reinforce the evidence regarding the relationship between TMDs and neck pain.

KEYWORDS: central nervous system sensitisation; orofacial pain; pain threshold; somatosensory disorders; temporomandibular disorders; thermal allodynia
PMID: 26871585

Condyle and disc**Morphometric features of the mandibular condyle and association with disc abnormalities**

Marianna Guanaes Gomes Torres, DDS, PhD Iêda Margarida Crusoé-Rebello, DDS, Marcos Rosário, DDS Maria Clara Albuquerque, DDS Paulo Sérgio Flores Campos, DDS, PhD

Abstract**Objective**

The aim of this study was to evaluate the relationship between morphometric characteristics of the condyle and temporomandibular joint (TMJ) disc displacement.

Study Design

One hundred and nine individuals who underwent magnetic resonance (MR) exam of the TMJ were evaluated. Linear (D1-condyle width; D2-condyle thickness) and angular (A1-horizontal condylar angle; A2-anterior condylar angle; A3-medial condylar angle) measurements were made. These measurements were associated with articular disc displacement, with and without reduction.

Results

There was statistically significant association between limited D1 and D2, and A1 above or below the mean and displacement of the joint disc. There was statistically significant association between A2 and anterior displacement of the disc. Furthermore, thicker condyles and/or condyles with smaller horizontal angles and/or with smaller medial angles were associated with articular disc reduction.

Conclusion

Morphometric characteristics of bony components of the TMJ are related to articular disc displacement, and with its reduction/non-reduction.

Keywords: temporomandibular joint; temporomandibular joint disorders; magnetic resonance imaging.

Pacifiers and malocclusion

Int J Paediatr Dent. 2016 Feb 9. doi: 10.1111/ipd.12227.

Effects of conventional and orthodontic pacifiers on the dental occlusion of children aged 24-36 months old.

Lima AA¹, Alves CM^{2,3}, Ribeiro CC^{3,4}, Pereira AL^{5,6}, da Silva AA^{3,7}, Silva LF^{8,9,10}, Thomaz EB^{3,11}.

Author information

Abstract

AIM:

To investigate the effects of conventional and orthodontic pacifiers on the prevalence of malocclusion (MO) considering frequency, duration, and intensity of the sucking habit.

DESIGN:

Data were collected at three time-points: birth, T1; (12-24 months old), T2; (24-36 months old), T3 and were divided into three groups: control (GC; 110), without non-nutritive sucking habits; orthodontic pacifiers (GOrth; 55); conventional pacifiers (GConv; 55). A questionnaire was applied. Clinical examination was performed at T3. The groups were compared as to the prevalence and severity of anterior open bite (AOB), accentuated overjet, anterior crossbite, posterior crossbite (PCB).

RESULTS:

The use of pacifiers was associated with occurrence of MO compared to GC ($P < 0.05$). Frequency, intensity, and duration of pacifier use was also associated with of MO. There was significant difference in the prevalence of MO between GConv and GOrth for AOB ($P = 0.027$). Only GConv exhibited higher odds of PCB compared to GC ($P = 0.040$). The prevalence of MO was significantly higher in pacifiers users ($P < 0.001$).

CONCLUSION:

The prevalence of MO was higher among children who used pacifiers. According to a general trend, the use of conventional pacifiers was associated to severe anterior open bite and overjet.

PMID: 26856705

Sleep Apnea

Sleep. 2016 Feb 1;39(2):293-300. doi: 10.5665/sleep.5430.

Serum Vitamin D Is Significantly Inversely Associated with Disease Severity in Caucasian Adults with Obstructive Sleep Apnea Syndrome.

Kerley CP^{1,2}, Hutchinson K^{3,4}, Bolger K¹, McGowan A¹, Faul J¹, Cormican L¹.

Author information

Abstract**STUDY OBJECTIVES:**

To evaluate vitamin D (25(OH)D) levels in obstructive sleep apnea syndrome (OSAS) and possible relationships to OSAS severity, sleepiness, lung function, nocturnal heart rate (HR), and body composition. We also aimed to compare the 25(OH)D status of a subset of OSAS patients compared to controls matched for important determinants of both OSAS and vitamin D deficiency (VDD).

METHODS:

This was a cross-sectional study conducted at an urban, clinical sleep medicine outpatient center. We recruited newly diagnosed, Caucasian adults who had recently undergone nocturnal polysomnography. We compared body mass index (BMI), body composition (bioelectrical impedance analysis), neck circumference, sleepiness (Epworth Sleepiness Scale), lung function, and vitamin D status (serum 25-hydroxyvitamin D (25(OH)D) across OSAS severity categories and non-OSAS subjects. Next, using a case-control design, we compared measures of serum 25(OH)D from OSAS cases to non-OSAS controls who were matched for age, gender, skin pigmentation, sleepiness, season, and BMI.

RESULTS:

106 adults (77 male; median age = 54.5; median BMI = 34.3 kg/m²) resident in Dublin, Ireland (latitude 53°N) were recruited and categorized as non-OSAS or mild/moderate/severe OSAS. 98% of OSAS cases had insufficient 25(OH)D (< 75 nmol/L), including 72% with VDD (< 50 nmol/L). 25(OH)D levels decreased with OSAS severity (P = 0.003). 25(OH)D was inversely correlated with BMI, percent body fat, AHI, and nocturnal HR. Subsequent multivariate regression analysis revealed that 25(OH)D was independently associated with both AHI (P = 0.016) and nocturnal HR (P = 0.0419). Our separate case-control study revealed that 25(OH)D was significantly lower in OSAS cases than matched, non-OSAS subjects (P = 0.001).

CONCLUSIONS:

We observed widespread vitamin D deficiency and insufficiency in a Caucasian, OSAS population. There were significant, independent, inverse relationships between 25(OH)D and AHI as well as nocturnal HR, a known cardiovascular risk factor. Further, 25(OH)D was significantly lower in OSAS cases compared to matched, non-OSAS subjects. We provide evidence that 25(OH)D and OSAS are related, but the role, if any, of replenishment has not been investigated.

KEYWORDS: apnea-hypopnea index; diet; nutrition; obesity; obstructive sleep apnea; sunshine; vitamin D

PMID: 26414899

Arytenoid dislocation

Spine (Phila Pa 1976). 2016 Feb;41(3):E174-7. doi: 10.1097/BRS.0000000000001185.

Prolonged Hoarseness Caused by Arytenoid Dislocation After Anterior Cervical Corpectomy and Fusion.

Zhong Z¹, Hu J, Wu N, Zhai J, Qi F, Weng X, Jiang P, Cao J, Zhang Z.
Author information

Abstract

STUDY DESIGN:

A case of arytenoid dislocation after anterior cervical corpectomy and fusion (ACCF) is reported.

OBJECTIVE:

To emphasize that arytenoid dislocation could be a possible cause of prolonged hoarseness in patients after ACCF.

SUMMARY OF BACKGROUND:

Prolonged hoarseness is a common postoperative complication of cervical surgeries, especially in the anterior approach. Postoperative hoarseness is usually associated with paresis of the recurrent laryngeal nerve (RLN). However, other causes such as arytenoids dislocation, which is often misdiagnosed as RLN palsy, should not be ignored either.

METHODS:

We reported one case of arytenoid dislocation after ACCF and reviewed the related literatures.

RESULTS:

One patient treated with ACCF experienced prolonged postoperative hoarseness. Arytenoid dislocation was confirmed by laryngoscopy examination and three-dimensional computed tomography (CT) scan. To deal with the problem, a closed reduction of cricoarytenoid joint was performed under general anesthesia. Fortunately, the motion of vocal fold became nearly back to normal after surgery and the patient recovered uneventfully. He was satisfied with the clinical outcome at the final follow-up.

CONCLUSION:

Arytenoid dislocation should never be ignored in the differential diagnosis of prolonged postoperative hoarseness after ACCF. This situation can be confirmed by CT scan, vocal cord electromyography (EMG), fiberoptic laryngoscopy, or stroboscopy. Once the diagnosis is established, appropriate treatment should be considered immediately.

LEVEL OF EVIDENCE:3. MID: 26555837

14. HEADACHES**Tinnitus**

Otol Neurotol. 2016 Mar;37(3):244-7. doi: 10.1097/MAO.0000000000000968.

Prevalence of Pulsatile Tinnitus Among Patients With Migraine.

Weinreich HM¹, Carey JP.

Author information

Abstract

OBJECTIVE:

To examine the prevalence of pulsatile tinnitus (PT) among patients with a diagnosis of migraine and to determine if treatment of migraine improves symptoms.

STUDY DESIGN:

Single-institution retrospective patient review.

SETTING:

Academic tertiary referral center.

PATIENTS:

Billing data capturing ICD-9 codes 346.xx and 388.3x was used to identify patients with history of migraine and tinnitus. Patients were excluded if the symptom of PT could be attributed to an alternate diagnosis. Data were extracted from the patients' electronic medical records.

INTERVENTION(S):

Therapeutic patients were prescribed a strict migraine diet with or without migraine medication.

MAIN OUTCOME MEASURE(S):

Subjective improvement in tinnitus as documented in electronic medical records.

RESULTS:

One thousand two hundred four patients were identified with an ICD-9 code for migraine and of those patients, 12% (n=145) had an ICD-9 code for tinnitus. After ruling out alternative causes, the prevalence of PT among all patients with migraine was 1.9%. Of migraineurs with PT who underwent migraine treatment, 11 out of 16 reported resolution or improvement of their PT.

CONCLUSION:

PT can be observed in the context of migraine. Migraine treatment with avoidance of dietary triggers with or without medication can possibly lead to resolution of PT.

PMID: 26859546

Vestibular migraine

Otol Neurotol. 2016 Mar;37(3):281-3. doi: 10.1097/MAO.0000000000000956.

Vestibular Migraine: Vestibular Symptom May Identify Different Subgroups.

Pereira CB¹, Nader SN, Kanashiro AK, de Carvalho WL.
Author information

Abstract

OBJECTIVE:

The objective of this study was to evaluate patients with vestibular migraine and analyze whether different vestibular symptoms were able to discriminate different subgroups.

PATIENTS:

Eighty-three patients (73 women, mean age 42 yr) who fulfilled the criteria for vestibular migraine were selected.

INTERVENTION:

Participants were divided into two groups according to their vestibular symptoms: spontaneous vertigo (SV) or triggered vertigo (TV). In each group, migraine subtype (migraine with aura and migraine without aura) was further analyzed.

RESULTS:

The SV group comprised 40 patients (35 women, mean age 42.6 yr) of which 26 had migraine with aura. The TV group comprised 43 patients (38 women, mean age 41.3 yr) of which 34 had migraine without aura. A significant difference in the presence of spontaneous vertigo was noted, proving more frequent in the migraine with aura group, whereas TV was more frequent in the migraine without aura group (χ test, $p < 0.0001$).

CONCLUSION:

Spontaneous rotatory vertigo was more frequent in migraine with aura, whereas triggered nonrotatory vertigo was more frequent in migraine without aura. This finding suggests a broad spectrum of clinical symptomatology in vestibular migraine patients. All of these patients are classified as vestibular migraine but they may represent two extremes of a disease spectrum.

PMID: 26808553

17. SHOULDER GIRDLE**Angle and rotator cuff**

J Shoulder Elbow Surg. 2016 Feb 15. pii: S1058-2746(15)00689-8. doi: 10.1016/j.jse.2015.11.059.

Predominance of the critical shoulder angle in the pathogenesis of degenerative diseases of the shoulder.

Blonna D¹, Giani A², Bellato E², Mattei L³, Caló M³, Rossi R², Castoldi F³.
Author information

Abstract

HYPOTHESIS:

The critical shoulder angle (CSA) could be responsible for cuff tears and concentric osteoarthritis. We aimed to assess this association when potential confounding factors were excluded and to test the hypothesis that more extreme CSAs are associated with larger tears and more severe osteoarthritis.

METHODS:

The study cohort was composed of 200 patients with primary concentric osteoarthritis (40 patients), isolated supraspinatus tears (40 patients), cuff tears involving at least the supraspinatus and infraspinatus (40 patients), and no history of shoulder problems (control group, 80 patients). Data pertaining to CSA, age, gender, dominant arm, smoking, hypertension, body mass index, and type of work were collected.

RESULTS:

The average CSA angle was $34^\circ \pm 3^\circ$ in the control group, $36^\circ \pm 3^\circ$ with supraspinatus tears, $40^\circ \pm 3.5^\circ$ with supraspinatus and infraspinatus tears, and $28^\circ \pm 2^\circ$ with concentric osteoarthritis. Patients with large cuff tears had a significantly greater CSA compared with those with isolated supraspinatus tears ($P = .03$). The CSA (odds, 1.7; confidence interval [CI], 1.4-2.0) was the most relevant risk factor for cuff tears. The Spearman coefficient between CSA and grade of eccentric osteoarthritis was 0.4 ($P = .01$). The 2 significant risk factors for concentric osteoarthritis were the CSA (odds, 0.5; CI 0.4-0.6) and age (odds, 1.1; CI, 1.0-1.2).

CONCLUSION:

Larger CSAs are associated with increased risk of symptomatic cuff tears, larger cuff tears, and the severity of eccentric osteoarthritis. Smaller angles increased the risk and severity of concentric symptomatic osteoarthritis. These associations remained significant even after removal of some of the potentially confounding variables.

KEYWORDS: Critical shoulder angle; concentric shoulder osteoarthritis; eccentric shoulder osteoarthritis; risk factors; rotator cuff tear; shoulder radiograph
PMID: 26899036

19. GLENOHUMERAL/SHOULDER**Body Schema****Tactile acuity, body schema integrity and physical performance of the shoulder: A cross-sectional study★**

Ingunn Botnmark, BPhy, MPhty Steve Tumilty, BPhy, MPhty, PhD Ramakrishnan Mani, BPhy, MPhty, PhD

Centre for Health, Activity & Rehabilitation Research, School of Physiotherapy, University of Otago, Dunedin, New Zealand

Highlights

- Reference values of shoulder tactile acuity have been reported.
- Non-dominant shoulder has better tactile acuity than the dominant shoulder.
- Tactile acuity of anterior, lateral, and posterior shoulder regions are similar.
- Better tactile acuity correlates with better performance in the stability task.
- Better body schema integrity correlates with better performance in the stability task.

Abstract**Background**

Normative two-point discrimination thresholds (TPDT) have been reported for different body regions and the relationships between TPDT and body schema integrity and physical performances are previously shown. However, such relationships with shoulder physical performance have not been investigated.

Objectives

To quantify TPDT of the shoulders in healthy individuals and investigate whether TPDT and body schema integrity are related to physical performances and to identify the relationship between TPDT and body schema integrity.

Design

Cross-sectional study.

Results

Means (SD) of TPDTs of the DS and NDS were 44.8 (13.1) mm and 39.3 (9.5) mm respectively. TPDT scores were significantly negatively correlated with CKCUEST scores ($r = -0.385$, $p = .036$) and LRJT response times (DS: $\rho = -0.449$, $p = .013$ and NDS: $\rho = -0.388$, $p = .034$). No significant correlations were found between TPDT and scores on FTPI and LRJT accuracy. However, positive moderate correlations were observed between LRJT and CKCUEST scores.

Conclusions

TPDTs for ND and NDS in a cohort of adults has been documented. Tactile acuity and body schema integrity scores were correlated with superior performance in the upper limb stability task, indicating the potential role of tactile acuity and motor imagery training on maximizing physical performance.

Keywords: Cortical reorganisation, laterality, proprioception, tactile spatial acuity

20 A. ROTATOR CUFF**Mental health**

J Bone Joint Surg Am. 2016 Feb 17;98(4):251-6. doi: 10.2106/JBJS.O.00444.

Mental Health Has a Stronger Association with Patient-Reported Shoulder Pain and Function Than Tear Size in Patients with Full-Thickness Rotator Cuff Tears.

Wylie JD¹, Suter T², Potter MQ³, Granger EK¹, Tashjian RZ⁴.

Author information

Abstract**BACKGROUND:**

Patient-reported outcome measures have increasingly accompanied objective examination findings in the evaluation of orthopaedic interventions. Our objective was to determine whether a validated measure of mental health (Short Form-36 Mental Component Summary [SF-36 MCS]) or measures of tear severity on magnetic resonance imaging were more strongly associated with self-assessed shoulder pain and function in patients with symptomatic full-thickness rotator cuff tears.

METHODS:

One hundred and sixty-nine patients with full-thickness rotator cuff tears were prospectively enrolled. Patients completed the Short Form-36, visual analog scales for shoulder pain and function, the Simple Shoulder Test (SST), and the American Shoulder and Elbow Surgeons (ASES) instrument at the time of diagnosis. Shoulder magnetic resonance imaging examinations were reviewed to document the number of tendons involved, tear size, tendon retraction, and tear surface area. Age, sex, body mass index, number of medical comorbidities, smoking status, and Workers' Compensation status were recorded. Bivariate correlations and multivariate regression models were calculated to identify associations with baseline shoulder scores.

RESULTS:

The SF-36 MCS had the strongest correlation with the visual analog scale for shoulder pain (Pearson correlation coefficient, -0.48; $p < 0.001$), the visual analog scale for shoulder function (Pearson correlation coefficient, -0.33; $p < 0.001$), the SST (Pearson correlation coefficient, 0.37; $p < 0.001$), and the ASES score (Pearson correlation coefficient, 0.51; $p < 0.001$). Tear severity only correlated with the visual analog scale for shoulder function; the Pearson correlation coefficient was 0.19 for tear size ($p = 0.018$), 0.18 for tendon retraction ($p = 0.025$), 0.18 for tear area ($p = 0.022$), and 0.20 for the number of tendons involved ($p = 0.011$). Tear severity did not correlate with other scores in bivariate correlations (all $p > 0.05$). In all multivariate models, the SF-36 MCS had the strongest association with the visual analog scale for shoulder pain, the visual analog scale for shoulder function, the SST, and the ASES score (all $p < 0.001$).

CONCLUSIONS:

Patient mental health may play an influential role in patient-reported pain and function in patients with full-thickness rotator cuff tears. Further studies are needed to determine its effect on the outcome of the treatment of rotator cuff disease.

LEVEL OF EVIDENCE:

Prognostic Level II. See Instructions for Authors for a complete description of levels of evidence. PMID: 26888672

20 B. LABRUM

Dx normal in 45 – 60 yo

Orthop J Sports Med. 2016 Jan 5;4(1):2325967115623212. doi: 10.1177/2325967115623212. eCollection 2016.

High Prevalence of Superior Labral Tears Diagnosed by MRI in Middle-Aged Patients With Asymptomatic Shoulders.

Schwartzberg R1, Reuss BL1, Burkhart BG1, Butterfield M2, Wu JY3, McLean KW3.

Author information**Abstract****BACKGROUND:**

The incidence of superior labral surgery has increased in the past decade in the United States, and a contributing factor could be an increased rate of superior labral tears diagnosed with magnetic resonance imaging (MRI). Prior MRI studies of the asymptomatic shoulder have focused on rotator cuff pathology or pathology in a narrow and specific group of athletes. Labral abnormalities have not previously been thoroughly evaluated in asymptomatic middle-aged individuals.

PURPOSE:

To evaluate the prevalence of superior labral tears diagnosed by MRI in the asymptomatic shoulders of middle-aged people (age range, 45-60 years).

STUDY DESIGN:

Cross-sectional study; Level of evidence, 3.

METHODS:

A total of 53 asymptomatic adults (age range, 45-60 years) with no history of surgery or injury to either shoulder were included in the study. Physical examinations of all shoulders were performed. Noncontrast MRI (1.5 T) was performed in 1 randomly determined shoulder of each subject. Two fellowship-trained musculoskeletal radiologists who were blinded to the purpose of the study and ages of the subjects evaluated each MRI.

RESULTS:

Radiologists interpreted the MRIs as consistent with superior labral tears in 55% and 72% of the cohort. Comparison of the radiological evaluations of the superior labra were moderate ($\kappa = 0.410$, $P = .033$). There were no differences in readings for superior labral tear regarding age ($P = .87$), sex ($P = .41$), whether the dominant shoulder underwent MRI ($P = .99$), whether the subject worked a physical job ($P = .08$), or whether the subject participated in overhead sports for a period of 1 year ($P = .62$).

CONCLUSION:

Superior labral tears are diagnosed with high frequency using MRI in 45- to 60-year-old individuals with asymptomatic shoulders. These shoulder MRI findings in middle-aged populations emphasize the need for supporting clinical judgment when making treatment decisions for this patient population.

CLINICAL RELEVANCE:

To avoid overtreatment, physicians should realize that superior labral tears diagnosed by MRI in individuals between the ages of 45 and 60 years may be normal age-related findings.

KEYWORDS:

MRI labral tear; SLAP lesion; asymptomatic shoulder; degenerative labral tear; middle-aged shoulders; shoulder MRI; superior labral tear

28. REPLACEMENTS

Exercise program enhanced function

Randomised controlled trial to evaluate a physiotherapy-led functional exercise programme after total hip replacement

Physiotherapy, 02/26/2016 Monaghan B, et al.

This study demonstrated that patients who undertake a physiotherapy-led functional exercise programme between 12 and 18 weeks after THR may gain significant functional improvement compared with patients receiving usual care.

30 A. IMPINGEMENT**Cyst**

Am J Sports Med. 2016 Feb;44(2):454-9. doi: 10.1177/0363546515612448. Epub 2015 Nov 30.

Is Subchondral Acetabular Edema or Cystic Change on MRI a Contraindication for Hip Arthroscopy in Patients With Femoroacetabular Impingement?

Krych AJ¹, King AH², Berardelli RL², Sousa PL², Levy BA².

Author information

Abstract

BACKGROUND: The outcome for arthroscopic treatment of femoroacetabular impingement (FAI) can worsen with increasing arthritis. However, there remains a subset of hips with relatively maintained joint space but with acetabular subchondral edema and cystic change with unknown outcome on magnetic resonance imaging (MRI).

PURPOSE: (1) To correlate MRI findings of subchondral acetabular edema/cystic change with arthroscopy grading of articular cartilage and (2) to determine whether postoperative outcome was worse for patients with subchondral edema/cystic change compared with a matched control group.

STUDY DESIGN: Cohort study; Level of evidence, 3.

METHODS: The records of all patients who underwent arthroscopic hip surgery for FAI at a single institution between 2007 and 2013 were reviewed for subchondral edema/cyst on preoperative MRI. Lesions were characterized by grade using an established classification system and were correlated with arthroscopic articular cartilage changes. A matched cohort of patients without evidence of subchondral edema or cyst was identified. Minimum 2-year outcomes were compared using prospectively collected Hip Outcome Score (HOS) activities of daily living and sport subscales as well as the modified Harris Hip Score (mHHS).

RESULTS: Overall, 104 patients were included. Thirty-six patients (18 men, 18 women) with a mean age of 41 years (range, 19-67 years) had subchondral edema, with or without the presence of cystic acetabular changes, at minimum 2-year follow-up (range, 24-60 months). Two patients who underwent total hip replacement were excluded in the outcome score comparison. Thirty-one of 34 patients (91%) had a grade 4 full-thickness cartilage lesion at the time of diagnostic arthroscopy. The mean mHHS was inferior for all patients with subchondral edema/cystic change (79.9 ± 18.7 vs 86.6 ± 12.5 ; $P = .03$), and the HOS was also lower (69.1 ± 27.0 vs 79.5 ± 21.4 ; $P = .02$). The overall success rate was 67% for all patients with subchondral edema/cystic change compared with 85% in the control group ($P = .04$).

CONCLUSION: The presence of a subchondral edema with an acetabular cyst on MRI is indicative of a full-thickness cartilage lesion at the time of arthroscopy. These patients have inferior outcomes for arthroscopic treatment of FAI compared with patients with similar age and activity level without MRI subchondral cystic changes.

KEYWORDS: acetabular cyst; acetabular edema; femoroacetabular impingement; hip; hip labral tear

PMID: 26620297

31. KNEE**PT utilization**

Use of Physical Therapy Following Total Knee Replacement Surgery: Implications of Orthopedic Surgeons' Ownership of Physical Therapy Services

1. Jean M. Mitchell Ph.D.^{1,*},
2. James D. Reschovsky Ph.D.² and
3. Elizabeth Anne Reicherter P.T., D.P.T., Ph.D.³

Article first published online: 23 FEB 2016

Objective

To examine whether the course of physical therapy treatments received by patients who undergo total knee replacement (TKR) surgery differs depending on whether the orthopedic surgeon has a financial stake in physical therapy services.

Data

Sample of Medicare beneficiaries who underwent TKR surgery during the years 2007–2009.

Study Design

We used regression analysis to evaluate the effect of physician self-referral on the following outcomes: (1) time from discharge to first physical therapy visit; (2) episode length; (3) number of physical therapy visits per episode; (4) number of physical therapy service units per episode; and (5) number of physical therapy services per episode expressed in relative value units.

Principal Findings

TKR patients who underwent physical therapy treatment at a physician-owned clinic received on average twice as many physical therapy visits (8.3 more) than patients whose TKR surgery was performed by a orthopedic surgeon who did not self-refer physical therapy services ($p < .001$). Regression-adjusted results show that TKR patients treated at physician-owned clinics received almost nine fewer physical therapy service units during an episode compared with patients treated by nonself-referring providers ($p < .001$). In relative value units, this difference was 4 ($p < .001$). In contrast, episodes where the orthopedic surgeon owner does not profit from physical therapy services rendered to the patient look virtually identical to episodes where the TKR surgery was performed by a surgeon nonowner.

Conclusions

Physical therapists not involved with physician-owned clinics saw patients for fewer visits, but the composition of physical therapy services rendered during each visit included more individualized therapeutic exercises.

32 A. KNEE/ACL**Change in gait**

Knee Surg Sports Traumatol Arthrosc. 2016 Feb 9.

Effects of narrow-base walking and dual tasking on gait spatiotemporal characteristics in anterior cruciate ligament-injured adults compared to healthy adults.

Mazaheri M^{1,2}, Negahban H³, Soltani M⁴, Mehravar M⁴, Tajali S⁴, Hessam M⁴, Salavati M⁵, Kingma I¹.

Author information

Abstract**PURPOSE:**

The present experiment was conducted to examine the hypothesis that challenging control through narrow-base walking and/or dual tasking affects ACL-injured adults more than healthy control adults.

METHODS:

Twenty male ACL-injured adults and twenty healthy male adults walked on a treadmill at a comfortable speed under two base-of-support conditions, normal-base versus narrow-base, with and without a cognitive task. Gait patterns were assessed using mean and variability of step length and mean and variability of step velocity. Cognitive performance was assessed using the number of correct counts in a backward counting task.

RESULTS:

Narrow-base walking resulted in a larger decrease in step length and a more pronounced increase in variability of step length and of step velocity in ACL-injured adults than in healthy adults. For most of the gait parameters and for backward counting performance, the dual-tasking effect was similar between the two groups.

CONCLUSIONS:

ACL-injured adults adopt a more conservative and more unstable gait pattern during narrow-base walking. This can be largely explained by deficits of postural control in ACL-injured adults, which impairs gait under more balance-demanding conditions. The observation that the dual-tasking effect did not differ between the groups may be explained by the fact that walking is an automatic process that involves minimal use of attentional resources, even after ACL injury. Clinicians should consider the need to include aspects of terrain complexity, such as walking on a narrow walkway, in gait assessment and training of patients with ACL injury.

LEVEL OF EVIDENCE: III.

KEYWORDS: Anterior cruciate ligament; Attention; Balance; Gait; Kinematics
PMID: 26860096

34. PATELLA

Chain mechanics

Knee. 2016 Feb 10. pii: S0968-0160(16)00015-6. doi: 10.1016/j.knee.2016.01.014.

Contribution of altered hip, knee and foot kinematics to dynamic postural impairments in females with patellofemoral pain during stair ascent.

de Oliveira Silva D¹, Magalhães FH², Pazzinatto MF¹, Briani RV¹, Ferreira AS¹, Aragão FA³, de Azevedo FM⁴.

Author information

Abstract

BACKGROUND:

Altered hip, knee and foot kinematics have been systematically observed in individuals with patellofemoral pain (PFP). However, less attention has been given to the altered dynamic postural control associated with PFP. Additionally, the relative contribution of kinematic impairments to the postural behavior of subjects with PFP remains an open question that warrants investigation. The aims of this study were: i) to investigate possible differences in hip adduction, rearfoot eversion, knee flexion and displacement area of the center of pressure (COP) in individuals with PFP in comparison to controls during stair ascent; and (ii) to determine which kinematic parameter is the best predictor of the displacement area of the COP measured during the stance phase of the stair ascent.

METHODS:

Twenty-nine females with PFP and 25 asymptomatic pain-free females underwent three-dimensional kinematic and COP analyses during stair ascent. Between-group comparisons were made using independent t-tests. Regression models were performed to identify the capability of each kinematic factor in predicting the displacement area of the COP.

RESULTS:

Reduced knee flexion and displacement area of the COP as well as increased peak hip adduction and peak rearfoot eversion were observed in individuals with PFP as compared to controls. Peak hip adduction was the best predictor of the displacement area of the COP ($r^2=23.4\%$).

CONCLUSIONS:

The excessive hip adduction was the biggest predictor of the displacement area of the COP.

CLINICAL RELEVANCE:

Based on our findings, proximally targeted interventions may be of major importance for the functional reestablishment of females with PFP.

KEYWORDS: Center of pressure; Knee injury; Patellofemoral joint; Postural control;

Regression analysis

PMID: 26875045

SI manip**The immediate effect of sacroiliac joint manipulation on EMG of vasti and gluteus medius in athletes with patellofemoral pain syndrome: a randomized controlled trial**

Alireza Motealleh Elham Gheysari Esmaeil shokri Dr. Sobhan Sobhani

Highlights

- Sacroiliac joint manipulation improved the EMG activity of vastus medialis and gluteus medius
- Improvement was observed in step-down test and pain intensity after manipulation
- Sacroiliac joint manipulation might be considered in the management of PFPS

Abstract**Objective**

To evaluate the immediate effect of sacroiliac joint manipulation on EMG activity of vastus medialis, vastus lateralis and gluteus medius as well as pain and functional performance of athletes with patellofemoral pain syndrome.

Design

Randomized placebo-controlled trial.

Methods

Twenty eight athletes with patellofemoral pain syndrome were randomly assigned to two groups. One group received a sacroiliac joint manipulation at the side of the involved knee while the other group received a sham manipulation. EMG activity of the vasti and gluteus medius were recorded before and after manipulation while performing a rocking on heel task. The functional abilities were evaluated using two tests: step-down and single-leg hop. Additionally, the pain intensity during the functional tests was assessed using a visual analog scale.

Results

The onset and amplitude of EMG activity from vastus medialis and gluteus medius were, respectively, earlier and higher in the manipulation group compared to the sham group. There were no significant differences, however, between two groups in EMG onset of vastus lateralis. While the scores of one-leg hop test were similar for both groups, significant improvement was observed in step-down test and pain intensity in the manipulation group compared to the sham group.

Conclusions

Sacroiliac joint manipulation might improve patellofemoral pain and functional level in athletes with patellofemoral pain syndrome. These effects could be due to the changes observed in EMG activity of gluteus medius and vasti muscles. Therefore, the sacroiliac joint manipulation might be considered in the rehabilitation protocol of the athletes with patellofemoral pain syndrome.

Keywords: Anterior knee pain, Chondromalacia, Electromyography, Manual therapy

38 A. FOOT AND ANKLE**Club foot**

J Pediatr Orthop. 2016 Mar;36(2):145-51. doi: 10.1097/BPO.0000000000000410.

The Relationship Between Gait, Gross Motor Function, and Parental Perceived Outcome in Children With Clubfeet.

Karol LA¹, Jeans KA, Kaipus KA.
Author information

Abstract

BACKGROUND:

Assessment of children treated nonoperatively for idiopathic clubfoot, has primarily focused on the kinematic and kinetic results measured with gait analysis (GA). Excellent results in ankle motion and push-off power during gait have been reported at age 5; however, the assessment of gross motor function, has not been evaluated. The purpose of this study was to look at the relationship between gait measures, Peabody Developmental Motor Scales and parent-perception of their child's outcome [measured with the Pediatric Outcomes Data Collection Instrument (PODCI)].

METHODS:

A total of 81 children with idiopathic clubfoot were seen for both GA and Peabody testing. Children who initially underwent the Ponseti technique (n=29), the French Physical Therapy method (PT) (n=23), and a group of children initially treated nonoperatively, but who required surgical intervention before GA at 5 years of age (n=29) were enrolled. Pearson's correlation coefficient was used to establish significant relationships between gait variables, Peabody, and PODCI scores.

RESULTS:

Gait data showed that the Ponseti treated feet had significantly greater ankle power than feet treated surgically (P=0.0075). The Peabody results showed that the PT feet had higher stationary (P=0.0332) and overall gross motor quotient percent (GMQ%) scores (P=0.0092) than the surgical feet. No differences were found in PODCI scores. Ankle power was weakly correlated to the GMQ% (r=0.29; P=0.0102); however, the GMQ% showed a strong correlation to the parent report of Global Functioning Scale on the PODCI (r=0.48; P=0.0005).

CONCLUSIONS:

Minimal gait disturbances do not interfere with function or parental assessment of abilities and satisfaction at 5-year follow-up in children with idiopathic clubfeet. Nonoperative correction of clubfeet should be the goal when possible, as the Peabody scores show better function as early as 5 years of age when surgery is not required.

LEVEL OF EVIDENCE: Level II-therapeutic.

PMID: 25705802

Surgical results

Return to sports after arthroscopic debridement and bone marrow stimulation of osteochondral talar defects: a 5- to 24-year follow-up study

Knee Surgery, Sports Traumatology, Arthroscopy, 02/25/2016 van Eekeren ICM, et al.

It is shown that 76 % of the patients were able to return to sports at long-term follow-up after arthroscopic debridement and bone marrow stimulation of talar OCDs. The activity level decreased at long-term follow-up and never reached the level of that before injury. The data of the study can be of importance to inform future patients on expectations after debridement and bone marrow stimulation of a talar OCD.

Calcaneal pain

J Pediatr Orthop. 2016 Mar;36(2):152-7. doi: 10.1097/BPO.0000000000000417.

Treatment of Calcaneal Apophysitis: Wait and See Versus Orthotic Device Versus Physical Therapy: A Pragmatic Therapeutic Randomized Clinical Trial.

Wiegerinck JI¹, Zwiers R, Sierevelt IN, van Weert HC, van Dijk CN, Struijs PA.
Author information

Abstract**BACKGROUND:**

Calcaneal apophysitis is a frequent cause of heel pain in children and is known to have a significant negative effect on the quality of life in affected children. The most effective treatment is currently unknown. The purpose of this study is to evaluate 3 frequently used conventional treatment modalities for calcaneal apophysitis.

METHODS:

Three treatment modalities were evaluated and compared in a prospective randomized single-blind setting: a pragmatic wait and see protocol versus a heel raise inlay (ViscoHeel; Bauerfeind) versus an eccentric exercise regime under physiotherapeutic supervision. Treatment duration was 10 weeks.

INCLUSION CRITERIA:

age between 8 and 15 years old, at least 4 weeks of heel pain complaints due to calcaneal apophysitis based, with a minimal Faces Pain Scale-Revised of 3 points. Primary exclusion criteria included other causes of heel pain and previous similar treatment. Primary outcome was Faces Pain Scale-Revised at 3 months. Secondary outcomes included patient satisfaction and Oxford Ankle and Foot Questionnaire (OAFQ). Points of measure were at baseline, 6 weeks, and 3 months. Analysis was performed according to the intention-to-treat principles.

RESULTS:

A total of 101 subjects were included. Three subjects were lost to follow-up. At 6 weeks, the heel raise subjects were more satisfied compared with both other groups ($P < 0.01$); the heel raise group improved significantly compared with the wait and see group for OAFQ Children ($P < 0.01$); the physical therapy group showed significant improvement compared with the wait and see group for OAFQ Parents ($P < 0.01$). Each treatment modality showed significant improvement of all outcome measures during follow-up ($P < 0.005$). No clinical relevant differences were found between the respective treatment modalities at final follow-up.

CONCLUSIONS:

Treatment with wait and see, a heel raise inlay, or physical therapy each resulted in a clinical relevant and statistical significant reduction of heel pain due to calcaneal apophysitis. No significant difference in heel pain reduction was found between individual treatment regimes. Calcaneal apophysitis is effectively treated by the evaluated regimes. Physicians should deliberate with patients and parents regarding the preferred treatment.

LEVEL OF EVIDENCE: Level 1-therapeutic randomized controlled trial.

PMID: 25985369

38 B. FOOT TYPES**Flexible foot and proximal joint pain****Are flexible flat feet associated with proximal joint problems in children?**

A. Kothari¹ P.C. Dixon J. Stebbins A.B. Zavatsky T. Theologis

Highlights

- The relationship between flat feet and proximal joint problems was investigated.
- Children with flat feet are more likely to have knee or hip/back symptoms.
- Flat feet are associated with a reduction in vertical ground reaction force.
- There were some kinematic and kinetic parameters associated with low arch height.
- The mechanism by which flat feet cause proximal joint symptoms is not clear.

Abstract

The role of flexible flat feet (FF) in the development of musculoskeletal symptoms at joints proximal to the ankle is unclear. We undertook an observational study to investigate the relationship between foot posture and the proximal joints in children. It was hypothesised that reduced arch height would be associated with proximal joint symptoms and altered gait kinematics and kinetics particularly in the transverse plane at the hip and knee. Ninety-five children between the ages of 8–15 were recruited into this ethically approved study. Foot posture was classified using the arch height index (AHI). The frequency of knee and hip/back pain was documented, and each child underwent three dimensional gait analysis. Reduced arch height was associated with increased odds of knee symptoms ($p < 0.01$) and hip/back symptoms ($p = 0.01$). A flat foot posture was also significantly associated with a reduction in the second peak of the vertical ground reaction force ($p = 0.03$), which concomitantly affected late stance hip and knee moments. A reduced AHI was also associated with increased pelvic retraction and increased knee valgus in midstance. No kinematic and kinetic parameter associated with a flat foot posture related to increased proximal joint symptoms in the FF group. Children with a flatter foot posture are more likely to have pain or discomfort at the knee, hip and back; however, the mechanisms by which this occurs remain unclear. Treating FF without explicit understanding of how it relates to symptoms is difficult, and further work in this area is required.

Keywords: Flat foot, Kinematics, Kinetics, Ground reaction force, Symptoms

40. ANKLE SPRAINS AND INSTABILITY**Gait changes in ankle instability**

Knee Surg Sports Traumatol Arthrosc. 2016 Feb 8.

Surface electromyography and plantar pressure during walking in young adults with chronic ankle instability.

Koldenhoven RM^{1,2}, Feger MA³, Fraser JJ^{3,4}, Saliba S³, Hertel J³.
Author information

Abstract

PURPOSE:

Lateral ankle sprains are common and can manifest into chronic ankle instability (CAI) resulting in altered gait mechanics that may lead to subsequent ankle sprains. Our purpose was to simultaneously analyse muscle activation patterns and plantar pressure distribution during walking in young adults with and without CAI.

METHODS:

Seventeen CAI and 17 healthy subjects walked on a treadmill at 4.8 km/h. Plantar pressure measures (pressure-time integral, peak pressure, time to peak pressure, contact area, contact time) of the entire foot and nine specific foot regions and medial-lateral location of centre of pressure (COP) were measured. Surface electromyography (EMG) root mean square (RMS) amplitudes throughout the entire stride cycle and area under RMS curve for 100 ms pre-initial contact (IC) and 200 ms post-IC for anterior tibialis, peroneus longus, medial gastrocnemius, and gluteus medius were collected.

RESULTS:

The CAI group demonstrated a more lateral COP throughout the stance phase ($P < 0.001$ and Cohen's $d > 0.9$ for all 10 comparisons) and significantly increased peak pressure ($P = 0.025$) and pressure-time integral ($P = 0.049$) under the lateral forefoot. The CAI group had lower anterior tibialis RMS areas ($P < 0.001$) and significantly higher peroneus longus, medial gastrocnemius, and gluteus medius RMS areas during 100 ms pre-IC ($P < 0.003$). The CAI group had higher gluteus medius sEMG amplitudes during the final 50 % of stance and first 25 % of swing ($P < 0.05$).

CONCLUSIONS:

The CAI group had large lateral deviations of their COP location throughout the entire stance phase and increased gluteus medius muscle activation amplitude during late stance through early swing phase.

LEVEL OF EVIDENCE:

III.

KEYWORDS: Ankle sprain; Gait; Gluteus medius; Muscle activation; Peroneus longus
PMID: 26856315

Changes in hip

Phys Ther. 2016 Feb 18.

Coordination and Symmetry Patterns During the Drop Vertical Jump in Participants With Chronic Ankle Instability and Lateral Ankle Sprain Copers.

Doherty C¹, Bleakley C², Hertel J³, Caulfield B⁴, Ryan J⁵, Sweeney K⁶, Patterson MR⁷, Delahunt E⁸.

Author information

Abstract

BACKGROUND:

The drop vertical jump (DVJ) task has previously been used to identify movement patterns associated with a number of injury types. However, no current research exists evaluating participants with chronic ankle instability (CAI) compared to lateral ankle sprain (LAS) copers during this task.

OBJECTIVE:

This study aims to identify the coping movement and motor control patterns of LAS copers in comparison to individuals with CAI during a DVJ task.

DESIGN:

Case-control study **METHODS:** Seventy individuals were recruited at convenience within 2-weeks of sustaining a first-time acute LAS injury. One year following recruitment these individuals were stratified into two groups: twenty-eight with CAI and forty-two LAS copers. They attended the testing laboratory to complete a DVJ task. 3D kinematic and sagittal plane kinetic profiles were plotted for the lower extremity joints of both limbs for the drop jump (phase 1) and drop landing (phase 2) phases of the DVJ. The rate of impact modulation relative to bodyweight (BW) during both phases of the DVJ was also determined.

RESULTS:

Compared with LAS copers, CAI participants displayed significant increases in hip flexion on their 'involved' limb during phase 1 of the DVJ (23° vs 18°), and bilaterally during phase 2 (15° vs 10°). These movement patterns coincided with altered moment-of-force patterns at the hip on the 'uninvolved' limb.

LIMITATIONS:

It is unknown whether these movement and motor control patterns preceded or occurred as a result of the initial LAS.

CONCLUSIONS:

Participants with CAI display hip-centred changes in movement and motor control patterns during a DVJ task compared to LAS copers. These findings may give an indication of the coping mechanism underlying outcome following initial LAS.

PMID: 26893510

41 B. COMPARTMENT SYNDROME

Botox

Clin J Sport Med. 2016 Jan 16.

Botulinum Toxin for Chronic Exertional Compartment Syndrome: A Case Report With 14 Month Follow-Up.

Baria MR1, Sellon JL.
Author information

Abstract

Chronic exertional compartment syndrome (CECS) presents a unique therapeutic challenge. Fasciotomy, currently the most well accepted treatment approach, still has a significant number of treatment failures, demonstrating the need for additional options. Botulinum toxin has been introduced as a potential therapeutic agent, but long-term outcomes are unknown. We present the longest documented follow-up (14 months) of a CECS case treated with botulinum toxin injections. At 14 months follow-up, the patient reported continued pain relief and had resumed her active lifestyle without any adverse effects. Although more research is needed to optimize patient selection and treatment protocol, this case illustrates the potential for botulinum toxin as a long duration, low risk alternative treatment option for CECS.

45 A. MANUAL THERAPY LUMBAR & GENERAL**SI Manipulation and PF pain****The immediate effect of sacroiliac joint manipulation on EMG of vasti and gluteus medius in athletes with patellofemoral pain syndrome: a randomized controlled trial**

Alireza Motealleh Elham Gheysari Esmaeil shokri Dr. Sobhan Sobhani

Highlights

- •Sacroiliac joint manipulation improved the EMG activity of vastus medialis and gluteus medius
- •Improvement was observed in step-down test and pain intensity after manipulation
- •Sacroiliac joint manipulation might be considered in the management of PFPS

Abstract**Objective**

To evaluate the immediate effect of sacroiliac joint manipulation on EMG activity of vastus medialis, vastus lateralis and gluteus medius as well as pain and functional performance of athletes with patellofemoral pain syndrome.

Design

Randomized placebo-controlled trial.

Methods

Twenty eight athletes with patellofemoral pain syndrome were randomly assigned to two groups. One group received a sacroiliac joint manipulation at the side of the involved knee while the other group received a sham manipulation. EMG activity of the vasti and gluteus medius were recorded before and after manipulation while performing a rocking on heel task. The functional abilities were evaluated using two tests: step-down and single-leg hop. Additionally, the pain intensity during the functional tests was assessed using a visual analog scale.

Results

The onset and amplitude of EMG activity from vastus medialis and gluteus medius were, respectively, earlier and higher in the manipulation group compared to the sham group. There were no significant differences, however, between two groups in EMG onset of vastus lateralis. While the scores of one-leg hop test were similar for both groups, significant improvement was observed in step-down test and pain intensity in the manipulation group compared to the sham group.

Conclusions

Sacroiliac joint manipulation might improve patellofemoral pain and functional level in athletes with patellofemoral pain syndrome. These effects could be due to the changes observed in EMG activity of gluteus medius and vasti muscles. Therefore, the sacroiliac joint manipulation might be considered in the rehabilitation protocol of the athletes with patellofemoral pain syndrome.

Keywords: Anterior knee pain, Chondromalacia, Electromyography, Manual therapy

48 C. MUSCLES**Adductors**

Skeletal Radiol. 2016 Apr;45(4):465-74. doi: 10.1007/s00256-015-2325-z. Epub 2016 Jan 6.

Normative values for volume and fat content of the hip abductor muscles and their dependence on side, age and gender in a healthy population.

Marcon M^{1,2}, Berger N³, Manoliu A⁴, Fischer MA⁵, Nanz D⁶, Andreisek G⁷, Ulbrich EJ⁸.
Author information

Abstract**OBJECTIVE:**

To determine normative values for volume and fat content of the gluteus medius (GMed) and minimus (GMin) muscle in healthy volunteers and to evaluate their dependence on age, gender and leg dominance.

MATERIALS AND METHODS:

The IRB approval was obtained for this study. 80 healthy volunteers (females, 40; males, 40; age range 20-62 years), divided into four age groups, were included. Fat- and water-signal-separated MR images of the pelvis were acquired on a 3.0 T MR with a 3-point mDIXON sequence. Normalized volume and fat-signal fraction (FSF) of the GMed (ViGMed, FSFGMed) and GMin (ViGMin, FSFGMin) muscles were determined.

RESULTS:

The overall mean volumes (normalized) and FSF \pm SD: ViGMed 105.13 \pm 16.30 cm(3); ViGMin 30.24 \pm 5.15 cm(3); FSFGMed 8.13 \pm 1.70 % and FSFGMin 9.89 \pm 2.72 %. Comparing different age subgroups within each gender no significant differences were found concerning the volumes and FSFs (except FSFGMin in male subgroup aged 20-29 versus 50-62 years, P = 0.014). Comparing FSFs differences between the two genders, only in 20-29 years subgroup, FSFGMed (P = 0.003) and FSFGMin (P = 0.002) were greater in female. Volume differences between the two legs were not significant (P > 0.077); FSFGMed and FSFGMin (P = 0.005 for both) were significantly lower in the dominant leg in female but not in male group (P = 0.454 for FSFGMed and P = 0.643 for FSFGMin).

CONCLUSION:

No age dependency was evident for volume normative data for GMed and GMin and normative data for FSF values showed no age- or gender dependency.

KEYWORDS: DIXON; Fatty infiltration; Hip muscles; MR; Normative values
PMID: 26739300

51. CFS/BET**Backpacks and LBP**

Spine J. 2016 Feb 12. pii: S1529-9430(16)00342-9. doi: 10.1016/j.spinee.2016.01.214.

The relationship between back pain and school bag use: A cross-sectional study of 5318 Italian students.

Aprile I¹, Di Stasio E², Vincenzi MT³, Arezzo MF⁴, De Santis F³, Mosca R⁵, Briani C⁶, Di Sipio E⁷, Germanotta M⁷, Padua L⁸.

Author information

Abstract

BACKGROUND CONTEXT:

Back pain at a young age is considered to be predictive of chronicity. Several studies have investigated the relationship between the use of a schoolbag and back pain, though some aspects are still unclear.

PURPOSE:

The aims of this study were to evaluate back pain due to schoolbag use in terms of : a) prevalence and intensity, b) differences between males and females, and c) predisposing factors.

STUDY DESIGN:

This is a cross-sectional study.

PATIENT SAMPLE:

5318 healthy pupils aged 6 to 19 years (classified according to three age groups: children, younger adolescents and older adolescents) **OUTCOME MEASURES:** Schoolbag-related pain was assessed by means of an ad-hoc questionnaire. The intensity of pain was assessed using the Wong scale.

METHODS:

Subjects underwent a face-to-face interview using an ad hoc questionnaire. The intensity of pain was assessed using the Wong scale. On the basis of the prevalence and intensity of back pain, we divided our population in two groups: a) no/mild pain group and, b) moderate/severe pain group. The "schoolbag load" (ratio between schoolbag and pupil weight multiplied by 100) was calculated for each subject.

RESULTS:

More than 60% of the subjects reported pain. Although the schoolbag load decreased from children to young and older adolescents, schoolbag-related pain significantly increased ($p < 0.001$). Girls reported significantly more frequent and more severe pain than boys. The logistic model confirmed that adolescent girls are the group at greatest risk of suffering from intense pain. The schoolbag load had a weak impact on back pain while the schoolbag carrying time was a strong predictor.

CONCLUSIONS:

Adolescent girls have the highest risk of experiencing severe back pain, regardless of schoolbag load. This suggests that other factors (anatomic, physiologic, or environmental) might play an important role in pain perception. These aspects should be investigated in order to plan appropriate preventive and rehabilitative strategies.

KEYWORDS: adolescents; back pain; children; gender; predisposing factors; schoolbag weight
PMID: 26882858

54. POSTURE

Gray matter in elderly and posture

Whole-brain grey matter density predicts balance stability irrespective of age and protects older adults from falling

Matthieu P. Boisgontier¹ Boris Cheval¹ Peter van Ruitenbeek Oron Levin Olivier Renaud, Julien Chanal Stephan P. Swinnen

Highlights

- Lower brain grey matter density is associated with lower stability, irrespective of age.
- Older adults are less stable than young adults, irrespective of grey matter density.
- These two effects are reinforced when the level of task difficulty increases.
- Grey matter protects older adults from falling.

Abstract

Functional and structural imaging studies have demonstrated the involvement of the brain in balance control. Nevertheless, how decisive grey matter density and white matter microstructural organisation are in predicting balance stability, and especially when linked to the effects of ageing, remains unclear. Standing balance was tested on a platform moving at different frequencies and amplitudes in 30 young and 30 older adults, with eyes open and with eyes closed. Centre of pressure variance was used as an indicator of balance instability. The mean density of grey matter and mean white matter microstructural organisation were measured using voxel-based morphometry and diffusion tensor imaging, respectively. Mixed-effects models were built to analyse the extent to which age, grey matter density, and white matter microstructural organisation predicted balance instability. Results showed that both grey matter density and age independently predicted balance instability. These predictions were reinforced when the level of difficulty of the conditions increased. Furthermore, grey matter predicted balance instability beyond age and at least as consistently as age across conditions. In other words, for balance stability, the level of whole-brain grey matter density is at least as decisive as being young or old. Finally, brain grey matter appeared to be protective against falls in older adults as age increased the probability of losing balance in older adults with low, but not moderate or high grey matter density. No such results were observed for white matter microstructural organisation, thereby reinforcing the specificity of our grey matter findings.

Keywords: Ageing, Falls, Grey matter, Posture, White matter

Infant sitting posture**Development of adaptive sensorimotor control in infant sitting posture**

Li-Chiou Chen John Jeka Jane E. Clark

Highlights

- Infants demonstrate an inverted-U pattern for visual-postural coupling.
- Sensory re-weighting in postural control exists a few months after sitting onset.
- Postural development involves improved self-motion control and perceptual ability.

Abstract

A reliable and adaptive relationship between action and perception is necessary for postural control. Our understanding of how this adaptive sensorimotor control develops during infancy is very limited. This study examines the dynamic visual–postural relationship during early development. Twenty healthy infants were divided into 4 developmental groups (each $n = 5$): sitting onset, standing alone, walking onset, and 1-year post-walking. During the experiment, the infant sat independently in a virtual moving-room in which anterior-posterior oscillations of visual motion were presented using a sum-of-sines technique with five input frequencies (from 0.12 to 1.24 Hz). Infants were tested in five conditions that varied in the amplitude of visual motion (from 0 to 8.64 cm). Gain and phase responses of infants' postural sway were analyzed. Our results showed that infants, from a few months post-sitting to 1 year post-walking, were able to control their sitting posture in response to various frequency and amplitude properties of the visual motion. Infants showed an adult-like inverted-U pattern for the frequency response to visual inputs with the highest gain at 0.52 and 0.76 Hz. As the visual motion amplitude increased, the gain response decreased. For the phase response, an adult-like frequency-dependent pattern was observed in all amplitude conditions for the experienced walkers. Newly sitting infants, however, showed variable postural behavior and did not systemically respond to the visual stimulus. Our results suggest that visual–postural entrainment and sensory re-weighting are fundamental processes that are present after a few months post sitting. Sensorimotor refinement during early postural development may result from the interactions of improved self-motion control and enhanced perceptual abilities.

Keywords: Posture, Vision, Sensorimotor, Infant, Sitting

Total hip replacement and posture

Eur Spine J. 2016 Feb 16.

The effect of total hip arthroplasty on sagittal spinal-pelvic-leg alignment and low back pain in patients with severe hip osteoarthritis.

Weng W¹, Wu H¹, Wu M¹, Zhu Y², Qiu Y³, Wang W⁴.

Author information

Abstract

PURPOSE:

Sagittal spinopelvic malalignment has been reported in spinal disorders such as low back pain (LBP), and restoration of normal alignment is targeted when treating these disorders. Abnormal sagittal spinal-pelvic-leg alignment has been reported in patients with severe hip osteoarthritis (OA), who have a high prevalence of associated LBP. This prospective longitudinal study aimed to investigate changes in sagittal spinal-pelvic-leg alignment after total hip arthroplasty (THA) in patients with severe hip OA, and whether these changes contribute to LBP relief.

METHODS:

Patients undergoing primary THA due to severe unilateral hip OA were recruited. Physical examination and X-ray films were taken to rule out any spinal disorder. Sagittal alignment of pelvis, hip, and spine was analyzed on lateral radiographs taken before (baseline) and 1 year after (follow-up) THA. Functional instruments were completed by patients including: visual analog scale (VAS) for LBP, Roland-Morris Disability Questionnaire (RMDQ), and Harris Hip Score (HHS). Comparisons were carried out at baseline and follow-up, and between patients with and without LBP.

RESULTS:

The recruited 69 patients showed significantly reduced hip flexion and improved global spinal balance at follow-up compared with baseline. LBP was reported by 39 patients (56.5 %) before surgery; at follow-up, 17 reported complete resolution, while 22 reported significant relief. Significant decreases in VAS and RMDQ scores in lumbar spine and increase in hip HHS were observed.

CONCLUSIONS:

THA in patients with severe hip OA could help correct abnormal sagittal spinal-pelvic-leg alignment and relieve comorbid LBP. Improvements in hip flexion and global spinal balance might be involved in the mechanism of LBP relief.

KEYWORDS: Hip flexion; Low back pain; Osteoarthritis; Sagittal alignment; Total hip arthroplasty

PMID: 26883265

55. SCOLIOSIS

Surgery

Eur Spine J. 2016 Feb 4.

Assessment of sensorimotor control in adults with surgical correction for idiopathic scoliosis.

Pialasse JP^{1,2}, Mercier P³, Descarreaux M⁴, Simoneau M^{5,6}.

Author information

Abstract

PURPOSE:

This study aims at verifying if impaired sensorimotor control observed in adolescents and young adults with scoliosis is also present in adult patients who underwent surgery to reduce their spine deformation.

METHODS:

The study included ten healthy adults and ten adults with idiopathic scoliosis who underwent surgery to reduce their spine deformation. Galvanic vestibular stimulation was delivered to assess sensorimotor control. Vertical forces under each foot and horizontal displacement of the upper body were measured before, during and after stimulation. Balance control was assessed by calculating the root mean square values of kinematic and kinetic variables.

RESULTS:

The amplitude of the vestibular-evoked postural response was 3.4 % (0.8-6.0 %) and 4.5 % (-0.4 to 9.5 %) of the maximal range of motion. Therefore, spine surgery did not limit the postural response. Patients with idiopathic scoliosis exhibited larger body sway than the healthy controls during and immediately after vestibular stimulation. The maximal normalized lateral displacement of the body was 0.85 and 0.40 cm/m and maximal normalized vertical force was 0.78 vs. 0.39 N/kg, for idiopathic scoliosis and healthy groups, respectively.

CONCLUSIONS:

This result suggests that dysfunctional sensorimotor integration is still present even in adult idiopathic scoliosis that underwent spine deformation correction.

KEYWORDS: Balance control; Galvanic vestibular stimulation; Idiopathic scoliosis; Sensorimotor integration; Surgery; Young adult

PMID: 26846230

56. ATHLETICS**Tennis players elbow changes**

Knee Surg Sports Traumatol Arthrosc. 2016 Feb 5.

Asymptomatic elite young tennis players show lateral and ventral growth plate alterations of proximal humerus on MRI.

Johansson FR^{1,2,3}, Skillgate E^{4,5}, Adolfsson A⁶, Jenner G⁷, De Bri E⁸, Swärd L⁹, Cools AM¹⁰.
Author information

Abstract

PURPOSE:

The specific aim of the study was to investigate and compare epiphyseal length and extension in the proximal humerus, closure in the growth plate and bone marrow signal intensity related to the proximal humeral physis in the dominant arm and the non-dominant arm of the asymptomatic adolescent elite tennis player.

METHODS:

The study sample included 35 asymptomatic elite young tennis players (15 males and 20 females, mean age 17.4 years \pm 2.7). Each player contributed with two shoulders to the MRI measurement. The non-dominant arm was used as a control.

RESULTS:

Relative reliability between the radiologists was excellent (ICC 0.78-0.96). Statistically significant differences between dominant arm and non-dominant arm in epiphyseal length (mm) laterally (DA 27.3 vs NDA 26.7) were shown. Statistically significant differences were also found in epiphyseal extension (mm) laterally (DA 36.1 vs NDA 35.1) and ventrally (DA 36.2 vs NDA 34.8). No statistically significant differences were found between dominant arm and non-dominant arm in epiphyseal extension (mm) medially (DA 31.7 vs NDA 31.7) and dorsally (DA 22.6 vs NDA 22.1).

CONCLUSIONS:

Significant findings assessing MRI measurements of the epiphyseal plate in the asymptomatic adolescent elite tennis player might reflect a development of consecutive alterations in the epiphyseal plate in the dominant arm.

LEVEL OF EVIDENCE:

Diagnostic study, Level IV.

KEYWORDS: Adolescent; Elite athlete; Epiphyseal plate; MRI; Shoulder
PMID: 26850513

Endurance

Scand J Med Sci Sports. 2016 Feb 16. doi: 10.1111/sms.12660.

Effects of submaximal and supramaximal interval training on determinants of endurance performance in endurance athletes.

Paquette M^{1,2}, Le Blanc O^{1,2}, Lucas SJ^{3,4}, Thibault G¹, Bailey DM^{5,6}, Brassard P^{1,2}.

Author information

Abstract

We compared the effects of submaximal and supramaximal cycling interval training on determinants of exercise performance in moderately endurance-trained men. Maximal oxygen consumption (VO_{2max}), peak power output (P_{peak}), and peak and mean anaerobic power were measured before and after 6 weeks (3 sessions/week) of submaximal (85% maximal aerobic power [MP], HIIT₈₅, n = 8) or supramaximal (115% MP, HIIT₁₁₅, n = 9) interval training to exhaustion in moderately endurance-trained men. High-intensity training volume was 47% lower in HIIT₁₁₅ vs HIIT₈₅ (304 ± 77 vs 571 ± 200 min; $P < 0.01$). Exercise training was generally associated with increased VO_{2max} (HIIT₈₅: $+3.3 \pm 3.1$ mL/kg/min; HIIT₁₁₅: $+3.3 \pm 3.6$ mL/kg/min; Time effect $P = 0.002$; Group effect: $P = 0.95$), P_{peak} (HIIT₈₅: $+18 \pm 9$ W; HIIT₁₁₅: $+16 \pm 27$ W; Time effect $P = 0.045$; Group effect: $P = 0.49$), and mean anaerobic power (HIIT₈₅: $+0.42 \pm 0.69$ W/kg; HIIT₁₁₅: $+0.55 \pm 0.65$ W/kg; Time effect $P = 0.01$; Group effect: $P = 0.18$). Six weeks of submaximal and supramaximal interval training performed to exhaustion seems to equally improve VO_{2max} and anaerobic power in endurance-trained men, despite half the accumulated time spent at the target intensity.

KEYWORDS: Aerobic capacity; cycling; endurance training; sprint performance
PMID: 26887354

58. RUNNING**Heart rate variables**

Med Sci Sports Exerc. 2016 Feb 24.

Individual Endurance Training Prescription with Heart Rate Variability.

Vesterinen V¹, Nummela A, Heikura I, Laine T, Hynynen E, Botella J, Häkkinen K.
Author information

Abstract

INTRODUCTION:

Measures of heart rate variability (HRV) have shown potential to be of use in training prescription.

PURPOSE:

The aim of this study was to investigate the effectiveness of using HRV in endurance training prescription.

METHODS:

Forty recreational endurance runners were divided into the HRV-guided experimental training group (EXP) and traditional, predefined training group (TRAD). After a 4-week preparation training period, TRAD trained according to a predefined training program including 2-3 moderate (MOD) and high intensity training (HIT) sessions per week during an 8-week intensive training period (INT). The timing of MOD and HIT sessions in EXP was based on HRV, measured every morning. MOD/HIT session was programmed, if HRV was within an individually determined smallest worthwhile change (SWC). Otherwise, low intensity training was performed. Maximal oxygen consumption (VO₂max) and 3000 m running performance (RS3000m) were measured before and after both training periods.

RESULTS:

The number of MOD and HIT sessions were significantly lower ($P = 0.021$, $ES = 0.98$) in EXP (13.2 ± 6.0 sessions) compared with TRAD (17.7 ± 2.5 sessions). No other differences in training were found between the groups. RS3000m improved in EXP ($2.1 \pm 2.0\%$, $P = 0.004$), but not in TRAD ($1.1 \pm 2.7\%$, $P = 0.118$) during INT. A small between-group difference ($ES = 0.42$) was found in the change of RS3000m. VO₂max improved in both groups (EXP: $3.7 \pm 4.6\%$, $P = 0.027$; TRAD: $5.0 \pm 5.2\%$, $P = 0.002$).

CONCLUSION:

The results of the present study suggest the potential of resting HRV to prescribe endurance training by individualizing the timing of vigorous training sessions.

PMID: 26909534

59. PAIN**GMT success**

Pain Pract. 2016 Feb 23. doi: 10.1111/papr.12431.

Successful Graded Mirror Therapy in a Patient with Chronic Deafferentation Pain in Whom Traditional Mirror Therapy was Ineffective: A Case Report.

Mibu A¹, Nishigami T², Tanaka K¹, Osumi M³, Tanabe A¹.

Author information

Abstract

A 43-year-old man had deafferentation pain in his right upper extremity secondary to brachial plexus avulsion from a traffic accident 23 years previously. On our initial examination, he had severe tingling pain with numbness in the right fingers rated 10 on the numerical rating scale. The body perception of the affected third and fourth fingers was distorted in the flexed position. Although he performed traditional mirror therapy (TMT) for 4 weeks in the same methods as seen in previous studies, he could not obtain willed motor imagery and pain-alleviation effect. Therefore, we modified the task of TMT: Graded mirror therapy (GMT). GMT consisted of five stages: (1) observation of the mirror reflection of the unaffected side without imagining any movements of the affected side; (2) observation of the mirror reflection of the third and fourth fingers changing shape gradually adjusted from a flexed position to an extended position; (3) observation of the mirror reflection of passive movement; (4) motor imagery of affected fingers with observation of the mirror reflection (similar to TMT); (5) motor imagery of affected fingers without mirror. Each task was performed for 3 to 4 weeks. As a result, pain intensity during mirror therapy gradually decreased and finally disappeared. The body perception of the affected fingers also improved, and he could imagine the movement of the fingers with or without mirror. We suggested that GMT starting from the observation task without motor imagery may effectively decrease deafferentation pain compared to TMT.

KEYWORDS: deafferentation pain; graded mirror therapy; mirror therapy; physical therapy; rehabilitation

PMID: 26914841

Vagal changes

Clin J Pain. 2016 Mar;32(3):218-25. doi: 10.1097/AJP.0000000000000242.

Chronic Pain and Heart Rate Variability in a Cross-Sectional Occupational Sample: Evidence for Impaired Vagal Control.

Koenig J¹, Loerbroks A, Jarczok MN, Fischer JE, Thayer JF.
Author information

Abstract

OBJECTIVES:

The vagus nerve influences the modulation of pain. Chronic pain is associated with disturbance of the descendent inhibitory pathway (DIP). Heart rate variability (HRV) is a proxy measure for vagal activity and may reflect dysfunction of the DIP. We aimed to investigate the association of HRV and pain in individuals with and without chronic pain.

MATERIALS AND METHODS:

Drawing on cross-sectional data from 647 individuals, the present study explores the association of HRV and pain. The root mean square of successive differences (RMSSD), corresponding to parasympathetic regulation of the heart, was derived from 24-hour electrocardiogram recordings. Pain, demographic data, and health behaviors were assessed by self-administered questionnaires. Blood pressure was measured and inflammatory markers (white blood cell count, C-reactive protein, and fibrinogen) were analyzed from fasting blood samples.

RESULTS:

Those with chronic pain reported lower RMSSD. Results revealed a negative correlation of HRV and pain in multivariate-adjusted analysis only in respondents without chronic pain.

DISCUSSION:

Our results suggest that the DIP indexed by vagal activity operationalized as RMSSD is disturbed in persons with chronic pain. Furthermore, the correlations between RMSSD and pain are different between those without and those with chronic pain. The findings are discussed, emphasizing changes in brain activity and the comorbid dysregulation of emotion in patients with chronic pain, to provide implications for the treatment of chronic pain.

PMID: 25924095

Empathy and pain inhibition

Clin J Pain. 2016 Mar;32(3):238-45. doi: 10.1097/AJP.0000000000000244.

Triggering Descending Pain Inhibition by Observing Ourselves or a Loved-One in Pain.

Gougeon V¹, Gaumont I, Goffaux P, Potvin S, Marchand S.
Author information

Abstract

OBJECTIVES:

Recent studies demonstrate that empathy-evoked brain responses include the activation of brainstem structures responsible for triggering descending pain inhibition. Unfortunately, direct evidence linking empathy for pain and descending inhibitory controls (conditioned pain modulation) is lacking. This study, therefore, aimed to determine if the observation of ourselves or a loved-one in pain could activate descending pain inhibition without exposure to a noxious stimulation; which is otherwise required.

METHODS:

Descending pain inhibition was triggered by immersing the right arm of participants (15 heterosexual couples; mean age \pm SE: 28.89 \pm 2.14) in a bath of cold water. The effects of empathy on descending pain inhibition were observed by immersing the right arm of participants in a bath of lukewarm water while having them watch a video of either themselves or their spouse during a previous nociceptive immersion. Immersion of the arm in a bath of lukewarm water without empathic (video) observation was also included as a control condition.

RESULTS:

A strong inhibitory response activated by the mere observation of the video of themselves or their spouse in pain without a nociceptive conditioning stimulus. Associative statistics also showed that strong pain catastrophizing responses while watching the video resulted in stronger pain inhibition. Moreover, high levels of empathy were associated with stronger pain inhibition, but only for women.

DISCUSSION:

This study showed that observing someone in pain triggers descending pain inhibition. Results also demonstrate how empathy and gender are affecting pain modulation mechanisms.

PMID: 25924097

Chronic pain and fear avoidance

BMC Geriatr. 2016 Feb 24;16(1):50. doi: 10.1186/s12877-016-0224-3.

Impact of pain characteristics and fear-avoidance beliefs on physical activity levels among older adults with chronic pain: a population-based, longitudinal study.

Larsson C¹, Ekvall Hansson E², Sundquist K^{3,4}, Jakobsson U⁵.

Author information

Abstract

BACKGROUND:

To explore the level of physical activity in a population based sample of older adults; to analyze the influence of pain characteristics and fear-avoidance beliefs as predictors of physical activity among older adults reporting chronic pain.

METHODS:

Demographics, pain characteristics (duration, intensity), physical activity, kinesiophobia (excessive fear of movement/(re) injury), self-efficacy and self-rated health were measured with questionnaires at baseline and 12-months later. Logistic regression analyses were done to identify associations at baseline and predictors of physical activity 12-months later during follow-up.

RESULTS:

Of the 1141 older adults (mean age 74.4 range 65-103 years, 53.5 % women) included in the study, 31.1 % of those with chronic pain were sufficiently active (scoring ≥ 4 on Grimby's physical activity scale) compared to 56.9 % of those without chronic pain. Lower age (OR = 0.93, 95 % CI = 0.88-0.99), low kinesiophobia OR = 0.95, 95 % CI = 0.91-0.99), and higher activity level at baseline (OR = 10.0, 95 % CI = 4.98-20.67) significantly predicted higher levels of physical activity in individuals with chronic pain.

CONCLUSION:

The level of physical activity was significantly lower among those with chronic pain and was significantly associated with kinesiophobia. Our findings suggest that fear-avoidance beliefs plays a more important role in predicting future physical activity levels than pain characteristics. Thus our findings are important to consider when aiming to increase physical activity in older adults that have chronic pain.

PMID: 26912216

Cortical response of pain

Primary sensory and motor cortex function in response to acute muscle pain: A systematic review and meta-analysis

European Journal of Pain, 02/25/2016 Burns E, et al.

The findings of this review indicate reduced S1 and corticomotor activity during and after resolution of acute muscle pain, mechanisms that could plausibly underpin altered sensorimotor function in pain.

Methods

- Demographic data, methodological characteristics and primary outcomes for each study were extracted for critical appraisal.
- Meta-analyses were performed where appropriate.
- Twenty-five studies satisfied the inclusion criteria.

Results

- There was consistent evidence from fMRI for increased S1 activation in the contralateral hemisphere during pain, but insufficient evidence to determine the effect at M1.
- Meta-analyses of TMS and EEG data revealed moderate to strong evidence of reduced S1 and corticomotor excitability during and following the resolution of muscle pain.
- A comprehensive understanding of the temporal profile of altered activity in S1/M1, and the relationship to symptoms of pain, is hampered by differences in methodological design, pain modality and pain severity between studies.

60. COMPLEX REGIONAL PAIN**Of the face**

Phys Ther. 2015 Nov 19.

Interdisciplinary Management of Complex Regional Pain Syndrome of the Face.

Parkitny L¹, Wand BM², Graham C³, Quintner J⁴, Moseley GL⁵.

Author information

Abstract

BACKGROUND:

Orofacial pain disorders are relatively uncommon and pose a substantial diagnostic challenge. This case report documents the diagnosis and management of hemifacial pain in a patient who was referred to an interdisciplinary pain medicine unit. The purpose of this case report is twofold. First, it presents complex regional pain syndrome (CRPS) as a potential differential diagnosis in cases of facial pain. Second, it describes the successful adaption of contemporary management approaches for distal-extremity CRPS to treat people with CRPS of the facial region.

CASE DESCRIPTION:

The patient had hemifacial pain and concomitant motor and autonomic symptoms after a small laceration of the eyelid. Extensive specialist medical evaluations were undertaken to exclude an underlying structural pathology. After detailed clinical assessments by a physical therapist, pain physician, and clinical psychologist, a diagnosis of CRPS involving the face was made.

OUTCOMES:

The patient's pain was largely unresponsive to pharmacological agents. A modified graded motor imagery program, together with desensitization and discrimination training, was commenced by the physical therapist and clinical psychologist. A positive clinical response was indicated by a decrease in allodynia, normalization of motor control, and regained function in activities of daily living.

DISCUSSION:

Complex regional pain syndrome is an infrequently reported differential diagnosis that can be considered in patients with persistent facial pain. This case report highlights how careful examination and clinical decision making led to the use of an innovative therapeutic strategy to manage a challenging condition.

PMID: 26586861

61. FIBROMYALGIA**Swimming****Swimming Improves Pain and Functional Capacity of Patients with Fibromyalgia: A Randomized Controlled Trial**

Giovana Fernandes, MSc, Fabio Jennings, MD, PhD, Michele Vieira Nery Cabral, PT, Ana Letícia Pirozzi Buosi, MD, Jamil Natour, MD, PhD

Abstract**Objective**

to evaluate the effect of swimming on pain, functional capacity, aerobic capacity and quality of life on patients with fibromyalgia (FM).

Design

Randomized controlled trial (RCT).

Setting

Rheumatology outpatient clinics of a university hospital.

Participants

Seventy-five female patients, aged 18 to 60 years, with FM randomly assigned to a swimming group (SG; n = 39) or a walking group (WG; n = 36).

Intervention

The SG performed 50 minutes of swimming 3 times a week for 12 weeks, with a heart rate at 11 beats under the anaerobic threshold (AT). The WG performed walking with heart rate at the AT, with the same duration and frequency of SG.

Main Outcome Measures

Participants were evaluated prior to the exercise protocols (T0), at six weeks (T6) and at 12 (T12) weeks after the onset of the protocols. The primary outcome measure was VAS for pain. The secondary measurements were: Fibromyalgia Impact Questionnaire and SF-36 questionnaire for quality of life; spirometric test for cardiorespiratory variables; and Timed Up-and-Go Test for functional performance.

Results

Patients in both groups experienced improvement in pain after the 12-week program, however with no difference between groups ($p=0,658$). The same results were found regarding functional capacity and quality of life. Moreover, no statistical difference between groups was found regarding aerobic capacity over time.

Conclusion

Swimming, like walking, is an effective method for reducing pain and improving both functional capacity and quality of life in patients with FM.

62 A. NUTRITION/VITAMINS**Nutrition and breast CA**

Carcinogenesis. 2016 Feb 19. pii: bgw023.

Adolescent dietary patterns and premenopausal breast cancer incidence.

Harris HR¹, Willett WC², Vaidya RL³, Michels KB⁴.

Author information

Abstract

Mammary tissue experiences the highest rate of proliferation during adolescence representing a period of heightened susceptibility. Few prospective studies have examined adolescent diet and breast cancer, and none have examined dietary patterns. Thus, we examined the association between adolescent dietary patterns and a diet quality index, the Alternative Healthy Eating Index(AHEI), and breast cancer in the Nurses' Health Study II among those who completed a 124-item food frequency questionnaire about their high school diet(HS-FFQ). Cox proportional hazards regression models were used to calculate hazard ratios(HR) and 95% confidence intervals(95% CI). Among 45,204 women who completed the HS-FFQ, 863 cases of premenopausal breast cancer and 614 cases of postmenopausal cancer were diagnosed. A marginal inverse association was observed between the "prudent" dietary pattern, characterized by high intake of vegetables, fruits, legumes, fish, and poultry, and premenopausal breast cancer. Women in fifth quintile had a multivariable adjusted HR (95% CI) of 0.84 (0.67-1.04) for premenopausal breast cancer($p_{\text{trend}}=0.07$) compared to the first quintile. Scoring higher on the AHEI was borderline significantly associated with premenopausal breast cancer with a HR of 0.81 (0.64-1.01) for the fifth quintile($p_{\text{trend}}=0.08$) and this association appeared to be stronger for ER-negative/PR-negative tumors. No association was observed between the "Western" pattern or the "fast food" pattern. Results were similar for each of these patterns when both pre and postmenopausal breast cancer were considered together. An overall healthy diet during adolescence, similar to the prudent dietary pattern or adherence to the AHEI, may contribute to reducing the risk of breast cancer.

KEYWORDS: adolescent diet; breast cancer; dietary patterns

PMID: 26905584

Fish consumption**Fish consumption in mid-childhood and its relationship to neuropsychological outcomes measured in 7-9 year old children using a NUTRIMENTHE Neuropsychological battery**

Clinical Nutrition, 02/26/2016 GispertLlaurado M, et al. –

The authors aim to assess the relation between fish consumption, estimated dietary n-3 long-chain polyunsaturated fatty acids (LCPUFA) intake and cognition and behaviour in childhood in a multi-centre European sample. Children who consumed 2 fish meals per week including one of fatty fish were less likely to show emotional and behavioural problems than those who did not.

Methods

- Children from 2 European studies, CHOP and NUHEAL, were assessed at 8 and 7.5 years of age, respectively.
- Different outcomes of neuropsychological development (assessed with the standardized NUTRIMENTHE Neuropsychological Battery (NNB) consisting of 15 subtests) were related with outcomes from a food-frequency questionnaire (FFQ) focusing on the consumption of fish.

Results

- A total of 584 children completed the FFQ and the neuropsychological tests.
- The authors found no associations with calculated DHA or EPA intakes for any of the neuropsychological domains.
- Children who consumed 2 fish meals per week including one of fatty fish, showed no substantive differences in the cognitive domains from the children who did not.
- However negative associations with fatty fish consumption were found for social problems ($p=0.019$), attention problems ($p=0.012$), rule-breaking problems ($p=0.019$) and aggressive behaviour problems ($p=0.032$).
- No association was observed with internalizing problems.
- Higher levels of externalizing problems ($p=0.018$) and total problems ($p=0.018$) were associated with eating less fatty fish.

PSA levels and CA

BJU Int. 2016 Feb 18. doi: 10.1111/bju.13411.

Men presenting with prostate-specific antigen (PSA) values of over 100 ng/mL.

Ang M¹, Rajcic B², Foreman D^{2,3,4,5}, Moretti K^{3,4,5,6}, O'Callaghan ME^{1,2,3,7,8}.
Author information

Abstract

OBJECTIVES:

To investigate overall survival and prostate cancer-specific mortality in men with prostate cancer presenting with a PSA level <100 ng/mL at the time of diagnosis.

PATIENTS:

Five-thousand seven hundred and sixteen patients with prostate cancer and a recorded diagnostic PSA level extracted from the South Australian Prostate Cancer Clinical Outcomes Collaborative (SA-PCCOC) database. Men included were diagnosed between January 1998 and August 2013.

METHODS:

Patients were divided into groups according to diagnostic PSA level: <20, 20-≤100, 100-≤200 ng/mL, 200-≤500 ng/mL, and >500 ng/mL. Outcomes measured include overall survival and prostate cancer-specific mortality. Clinical stage, Gleason score and the presence of bony metastasis was evaluated to determine if they were prognostic factors in patients with PSA over 100 at diagnosis. Cox proportional hazards and competing risks regression were used to model overall survival and prostate cancer-specific mortality outcomes respectively.

RESULTS:

Of this cohort, 241 patients (4.2%) had a diagnostic PSA level >100 ng/mL. Patients with PSA >100 ng/mL have a significant reduction in five (29.1% vs 62.5% vs 87%) and ten-year (18.2% vs 36.7% vs 70.7%) overall survival when compared to men with diagnostic PSA 20-100 and <20 ng/mL respectively. In this group, prostate cancer-specific mortality was associated with Gleason score and metastases, but not PSA level at diagnosis. Overall survival was associated with PSA level, Gleason score and age. There was a linear increase in risk (overall survival) as PSA increased until 200 and no association thereafter. Models of overall survival and prostate cancer-specific mortality incorporating a risk stratification developed by Izumi et al. predicted overall survival but not prostate cancer-specific mortality. The use of this stratification did not improve model accuracy.

CONCLUSION:

Only a small number of men (4.2%) with prostate cancer present with PSA >100 ng/mL at diagnosis. Overall survival at five and ten years was significantly poorer in patients with PSA >100 ng/mL. In this cohort of men presenting with PSA >100 at diagnosis, PSA level was not associated with prostate cancer-specific mortality. Gleason score and metastases are significant prognostic factors in this group of men.

KEYWORDS: high PSA; mortality; prostate cancer; prostate-specific antigen; survival
PMID: 26890320

Vit. And cognitive function

J Nurs Scholarsh. 2016 Feb 15. doi: 10.1111/jnu.12201.

Effects of Multivitamin Supplements on Cognitive Function, Serum Homocysteine Level, and Depression of Korean With Mild Cognitive Impairment in Care Facilities.

Lee HK¹, Kim SY², Sok SR³.

Author information

Abstract**PURPOSE:**

To examine effects of multivitamin supplements on cognitive function, serum homocysteine level, and depression of Korean older adults with mild cognitive impairment (MCI) in care facilities.

DESIGN:

A quasi-experimental pretest-posttest control group design was employed.

METHODS:

Forty-eight adults 65 years of age and older with MCI (experimental, n = 24; control, n = 24) who were living in care facilities in Gyeong-gi-do, Korea, were recruited. Multivitamin supplements as experimental treatment consisted of vitamin B6, B12, and folic acid. Multivitamin supplements were taken at a dosage of one pill every day for 12 weeks through the oral route. Measures were Mini Mental State Examination-Korean, serum homocysteine level, and Geriatric Depression Scale Short Form Korea Version. Collected data were analyzed using SPSS version 21.0 statistical software (SPSS Inc., Chicago, IL, USA).

FINDINGS:

There were significant effects of multivitamin supplements on cognitive function ($F = 3.624$, $p = .021$), serum homocysteine level ($F = 6.974$, $p = .001$), and depression ($F = 10.849$, $p = .001$).

CONCLUSIONS:

Multivitamin supplements increased cognitive function, and decreased serum homocysteine level and depression of Korean older adults with MCI in care facilities.

CLINICAL RELEVANCE:

Multivitamin supplements can be utilized for improving cognitive ability and for decreasing depression of Korean older adults with MCI in care facilities.

KEYWORDS: Aged; cognition; depression; homocysteine; vitamin

PMID: 26878196

Vit B 12 and cognitive function

Am J Clin Nutr. 2016 Feb 24. pii: ajcn116970.

Vitamin B-12 concentration, memory performance, and hippocampal structure in patients with mild cognitive impairment.

Köbe T¹, Witte AV², Schnelle A¹, Grittner U³, Tesky VA⁴, Pantel J⁴, Schuchardt JP⁵, Hahn A⁵, Bohlken J⁶, Rujescu D⁷, Flöel A⁸.

Author information

Abstract

BACKGROUND:

Low-normal concentrations of vitamin B-12 (VitB12) may be associated with worse cognition. However, previous evidence has been mixed, and the underlying mechanisms remain unclear.

OBJECTIVE:

We determined whether serum VitB12 concentrations within the normal range were linked to memory functions and related neuronal structures in patients with mild cognitive impairment (MCI).

DESIGN:

In a cross-sectional design, we assessed 100 amnesic MCI patients (52 women; age range: 50-80 y) with low- and high-normal VitB12 concentration (median split: 304 pmol/L) for memory functions with the use of the Auditory Verbal Learning Test. MRI was performed at 3 tesla (n = 86) for the estimation of the volume and microstructure of the hippocampus and its subfields as indicated by the mean diffusivity on diffusion-weighted images. With the use of a mediation analysis, we examined whether the relation between VitB12 and memory performance was partially explained by volume or microstructure.

RESULTS:

MCI patients with low-normal VitB12 showed a significantly poorer learning ability (P = 0.014) and recognition performance (P = 0.008) than did patients with high-normal VitB12. Also, the microstructure integrity of the hippocampus was lower in patients with low-normal VitB12, mainly in the cornu ammonis 4 and dentate gyrus region (P = 0.029), which partially mediated the effect of VitB12 on memory performance (32-48%). Adjustments for age, sex, education, apolipoprotein E e4 status, and total homocysteine, folate, and creatinine did not attenuate the effects.

CONCLUSIONS:

Low VitB12 concentrations within the normal range are associated with poorer memory performance, which is an effect that is partially mediated by the reduced microstructural integrity of the hippocampus. Future interventional trials are needed to assess whether supplementation of VitB12 may improve cognition in MCI patients even in the absence of clinically manifested VitB12 deficiency. This trial was registered at clinicaltrials.gov as NCT01219244.

KEYWORDS: MCI; episodic memory; hippocampus; mean diffusivity; vitamin B-12
PMID:26912492