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NEUROLOGICAL CONDITIONS

LBP

LBP alternative management

Neuromodulation. 2014 Oct;17 Suppl 2:24-30. doi: 10.1111/ner.12078.

Noninvasive and alternative management of chronic low back pain (efficacy and outcomes).

Wellington J.

Abstract

OBJECTIVES:

The goal of this article is to provide a thorough literature review of available noninvasive and alternative treatment options for chronic low back pain. In particular, the efficacy of each therapy is evaluated and pertinent outcomes are described.

MATERIALS AND METHODS:

A comprehensive search for available literature was done through PubMed and Cochrane data base for topics discussed in this paper.

RESULTS:

Relevant current and past references were reviewed and presented to reflect the efficacy of each therapy and related outcomes.

CONCLUSIONS:

There are a wide variety of noninvasive and alternative therapies for the treatment of chronic low back pain. Those with the strongest evidence in the literature for good efficacy and outcomes include exercise therapy with supervised physical therapy, multidisciplinary biopsychosocial rehabilitation, and acupuncture. Therapies with fair evidence or moderately supported by literature include yoga, back schools, thermal modalities, acupressure, and cognitive-behavioral therapy. Those therapies with poor evidence or little to no literature support include manipulation, transcutaneous electrical nerve stimulation, low-level laser therapy, reflexology, biofeedback, progressive relaxation, hypnosis, and aromatherapy. Providers delivering care for patients with chronic low back pain must carefully evaluate these available treatment options related to their efficacy or lack thereof as well as relevant outcomes

Differential diagnosis of LBP

Neuromodulation. 2014 Oct;17 Suppl 2:11-7. doi: 10.1111/ner.12173.

The differential diagnosis of low back pain: a primer on the evolving paradigm.

Amirdelfan K1, McRoberts P, Deer TR.

Abstract***OBJECTIVES:***

The issue of low back pain (LBP) is as common as it is perplexing. LBP is thought to be a chronic issue in approximately 10% of the U.S. population. This condition has wide-reaching social and economical reverberations. Despite the availability of modern diagnostic tools, the cause of the pain generator is often unidentifiable. The authors were asked to create an overview of the etiology of LBP for physicians who implant neurostimulation devices for the treatment of chronic pain patients. Some prevalence data, based on the current available literature, have been provided for the more common structural conditions causing LBP. However, a comprehensive review of prevalence of various conditions and their respective manifestations as LBP is beyond the scope of this article.

MATERIALS AND METHODS:

A review was performed of frequently cited articles with search terms for "low back pain" using PubMed, Medline, and Google Scholar. The authors also reviewed other literature from commonly utilized sources in the field of interventional pain medicine such as the journals of Neuromodulation, Pain Medicine, Spine, and Neurosurgery in the publication date range of 1975 to the present. Moreover, recent edition textbooks of other specialties such as obstetrics and gynecology, neurology, internal medicine, and surgery were referenced to develop a comprehensive list of the differential diagnoses. In order to capture the broad scope of information presented in this article, the criteria used to choose the references included published peer-reviewed articles that provided information on LBP as a symptom of a case report to common presentations of various conditions as described in a number of current, and commonly used, textbooks in their specialty.

RESULTS:

The article serves as a reference for commonly cited causes of LBP as well as less common conditions presenting with LBP as a possible symptom, which may occur as a solitary pain generator or in combination with other etiologies. The information is structured in such a fashion to allow a comprehensive overview for every reader, including the most experienced implanting physicians. The article is designed to kindle critical thinking regarding the massive scope involved in the assessment of a patient with a complaint of LBP. The results of the comprehensive research to produce this article clearly indicate the broad scope of this list of differential diagnoses. The reader should be aware that the lists are by no means all-inclusive. Perhaps additional efforts will be necessary to build on the available information in this article in the future. Furthermore, although some prevalence data for LBP, as it is related to structural spine, is readily available based on the excellent work of our colleagues and presented throughout this paper, for other disease processes, the prevalence data are scarce to nonexistent. This underscores the need for further research to better understand this elusive condition. The size and breadth of the topic at hand in this article would arguably deserve its own comprehensive textbook. The complexity and discussion points of each identified pain generator could be given a chapter or section to reflect complex learning deserved by each topic. With these limitations, the

authors recommend the reader to evaluate this article in the context of a broader topic of LBP and neurostimulation.

CONCLUSIONS:

LBP is an extremely common condition associated, as a symptom, with various disease processes, regardless of their relationship with the lumbar spine or its innervation. This article underscores the broad nature of LBP as a symptom of many diagnoses. The primary conclusion reached by the authors is the most important recommendation by all mentors in medicine, which is to obtain a comprehensive history and perform a complete physical examination on each patient. Despite the fact that there is an emerging school of thought questioning the validity of the physical examination, this tool continues to be the current standard of care and used by a majority of clinicians around the world. The physician must analyze the information obtained from his/her history, physical examination, and diagnostic tools with the recognition of the broad nature of the differential diagnoses of LBP in order to be able to best treat the patient.

© 2014 International Neuromodulation Society. KEYWORDS: Chronic pain; differential diagnosis; low back pain; neurostimulation; review article PMID: 25395112

Genetics and LBP – Twin study

Eur J Pain. 2014 Nov;18(10):1410-8. doi: 10.1002/ejp.506. Epub 2014 Apr 15.

Heritability and lifestyle factors in chronic low back pain: results of the Australian Twin Low Back Pain Study (The AUTBACK study).

Junqueira DR1, Ferreira ML, Refshauge K, Maher CG, Hopper JL, Hancock M, Carvalho MG, Ferreira PH.

Abstract***BACKGROUND:***

Heritability and population-specific lifestyle factors are considered to significantly contribute to chronic low back pain (LBP), but traditional population studies fail to (1) adjust for genetics; and (2) use standard and validated definitions for LBP and for lifestyle factors.

METHODS:

Using a classical and a co-twin control study design and validated definitions for chronic LBP and lifestyle variables, we explored the relative contribution of genetics and environment on the prevalence of chronic LBP in a sample of adult Australian twins.

RESULTS:

Data from 105 twin pairs showed that the prevalence of chronic LBP is significantly determined by genetic factors (heritability = 32%). Additionally, monozygotic twins were five times more likely to have chronic LBP than dizygotic twins when one of the siblings of the pair was affected. In a case-control analysis (n = 38 twin pairs), an exploratory analysis showed higher prevalence of chronic LBP associated with light walking exercises and vigorous gardening or heavy work around the house. Daily time spent in sitting was also positively associated with chronic LBP, but not moderate physical activities such as jogging, cycling and gentle swimming. In the final multivariate model, only time spent in vigorous gardening or heavy work around the house remained associated with chronic LBP (odds ratio 6.5; 95% confidence interval 1.47-28.8).

CONCLUSIONS:

The type, frequency and duration of physical activity may be important to understand risk factors for chronic LBP. The causation path between chronic LBP and people's engagement in activities involving frequent bending and twisting such as gardening and housework should be further investigated

INJECTIONS

Discography

Provocative diskography: safety and predictive value in the outcome of spinal fusion or pain intervention for chronic low-back pain *Full Text*

Journal of Pain Research, 12/05/2014 Clinical Article

Willems PC, et al

Abstract: There is still no clear definition of diskogenic low-back pain and no consensus on a generally agreed test, such as provocative diskography (PD), to diagnose painful disk degeneration, and probably more importantly, to predict the outcome of therapy intended to reduce pain that is presumed to be diskogenic in nature. Nevertheless, PD is the most specific procedure to diagnose diskogenic low-back pain. Its accuracy, however, is rather low or at best unknown. Although rare, the most prevalent complication, postdiskography diskitis, can be devastating for the individual patient, so all measures, like strict sterile conditions and antibiotic prophylaxis, should be taken to avoid this complication. It is advised to perform the procedure in a pressure-controlled way with a constant low flow, and optionally computed tomography imaging. PD should not be performed in morphologically normal disks. A standardized execution of the test should be established in order to perform high-quality studies to determine its accuracy to lead to meaningful interventions, and find best practices for diagnosis and treatment of diskogenic back pain. Possibly, PD may have detrimental effects on the disk, causing early degeneration, although it is unknown whether this will be related to clinical symptoms. Especially with these possible adverse side effects in mind, the risk–benefit ratio with the lack of clear benefits from treatments provided, and possible complications of disk puncture, the rationale for PD is questionable, which should be stressed to patients in the process of shared decision making. Diskography as a stand-alone test is not recommended in clinical decision making for patients with chronic low-back pain.

Keywords: provocative diskography, chronic low-back pain, prognostic accuracy, spinal fusion, pain intervention

VISCERA**Airway disease and IBS**

Eur Respir J. 2014 Nov 18. pii: erj00794-2014.

Increased incidence of inflammatory bowel disease in Québec residents with airway diseases.

Brassard P¹, Vutcovici M², Ernst P³, Patenaude V⁴, Sewitch M⁵, Suissa S³, Bitton A⁶.

Abstract

The objective of the study was to assess whether the incidences of Crohn's disease and ulcerative colitis are increased in patients with asthma and chronic obstructive pulmonary disease (COPD) compared to the general population. A population-based retrospective cohort study was conducted using the administrative health databases of Québec, Canada. Incidences of Crohn's disease and ulcerative colitis among patients with asthma and COPD were assessed for the 2001-2006 period. In total, 136 178 subjects with asthma and 143 904 subjects with COPD were identified. The average incidence of Crohn's disease and ulcerative colitis was 23.1 and 8.8 per 100 000 person-years among asthmatic patients; in the COPD cohort there were 26.2 Crohn's disease cases and 17 ulcerative colitis cases per 100 000 person-years. The incidence of Crohn's disease in asthma and COPD patients was 27% and 55% higher than in the general population of Québec; the incidence of ulcerative colitis was 30% higher among COPD patients compared to the general population. Incidence of inflammatory bowel disease was significantly increased in asthma and COPD patients compared to the general population of Québec. Incidence rates were particularly high in patients with COPD. Awareness of an association between airway diseases and inflammatory bowel disease in older age groups may play an important role in earlier detection of bowel disease and in the therapeutic management of such patients.

©ERS. PMID: 25406447

Abdominal pain

Neurogastroenterol Motil. 2014 Nov 27. doi: 10.1111/nmo.12474.

The potential role of behavioral therapies in the management of centrally mediated abdominal pain.

Keefner L¹, Mandal S.

Abstract***BACKGROUND:***

Chronic abdominal pain carries a substantial health care burden but little is known about best practices for its management across ambulatory, hospital, and emergency room settings. This is especially true when abdominal pain presents in the absence of peripheral triggers like tissue injury (e.g. appendicitis) or altered bowel movements (e.g. IBS). Unfortunately, once central sensitization has occurred, pain can present without any stimulation or with minimal peripheral stimulation (feeling of clothing on the area) to the abdominal region. Several studies have proven the superior efficacy of behavioral interventions on many centrally mediated pain conditions including headaches and musculoskeletal problems. However, behavioral treatment of centrally mediated abdominal pain is less investigated due to the complexity of the patients involved and the poor understanding of the factors which either initiate or maintain persistent GI pain.

PURPOSE:

We examine the evidence for a range of psychological and behavioral interventions in the context of centrally mediated abdominal pain. In addition to a strong rationale for a behavioral approach tied to the fear avoidance model of pain, we describe the structure, therapeutic targets, current evidence and relevance for each class of behavioral interventions.

© 2014 John Wiley & Sons Ltd. **KEYWORDS:** abdominal pain; behavioral management; centrally mediated abdominal pain; chronic pain; fear avoidance PMID: 25428520

CRANIUM/TMJ**Oral health and athletes**

Br J Sports Med. 2014 Nov 11. pii: bjsports-2014-093617. doi: 10.1136/bjsports-2014-093617.

Oral health of elite athletes and association with performance: a systematic review.

Ashley P1, Di Iorio A2, Cole E3, Tanday A3, Needleman I2.

Abstract***BACKGROUND:***

We aimed to systematically review the epidemiology of oral disease and trauma in the elite athlete population and to investigate the impact of oral health on sporting performance.

METHODS:

Authors searched Ovid MEDLINE (1950 to October 2013), Ovid EMBASE (1980 to October 2013), EBSCO SPORTDiscus (up to October 2013) and OpenGrey (<http://www.opengrey.eu>). No date or language restrictions were applied. Papers were included if they evaluated the oral health of professional athletes. The methodological quality of papers was evaluated using a modification of the Newcastle-Ottawa scale.

RESULTS:

The literature search led to 9858 potentially relevant citations. Following a set of predefined exclusion criteria, 34 studies remained. Twenty-six studies reported on dental trauma, which ranged in prevalence from 14% to 47% varying by sport and country. Sixteen studies considered the oral health of athletes and reported high prevalence of oral diseases: dental caries 15-75%, dental erosion 36-85%, periodontal disease 15%. In four studies, a range between 5% and 18% of athletes reported negative impact of oral health or trauma on performance. The methodological quality of included studies was generally low.

CONCLUSIONS:

Within the limits of the review, oral health of athletes is poor. We hypothesise that poor oral health associates with self-reported performance; however, this needs to be tested. Further studies on representative samples of athletes are needed to assess the size of the problem of poor oral health as well as to investigate the possible impact on performance using objective measures of performance.

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KEYWORDS: *Dentistry; Evidence based review; Teeth PMID: 25388551*

HEADACHES

Sleep and HA

Curr Pain Headache Rep. 2015 Jan;19(1):468. doi: 10.1007/s11916-014-0468-6.

Sleep and chronic daily headache.

Stark CD1, Stark RJ.

Abstract

Sleep and headache have a complex and extensive interrelationship. This review focuses on the relationship between sleep and chronic daily headache, examining recent advances in the epidemiology and insights into possible mechanisms of this relationship as well as reviewing advances in treatment. There is a clear relationship between obstructive sleep apnoea (OSA) and snoring and morning headache, but the relationship between OSA and snoring and other primary headaches requires clarification. OSA and chronic migraine share both obesity and patent foramen ovale (PFO) as possible co-morbidities. Hypoxia does not clearly predispose to morning headache. Continuous positive airway pressure (CPAP) is an established treatment for OSA, and mixed results have been reported with regards to headache improvement with this treatment

CONCUSSIONS

Youth football and head trauma

Med Sci Sports Exerc. 2014 Nov 26.

Head Impact Exposure and Neurologic Function of Youth Football Players.

Munce TA¹, Dorman JC, Thompson PA, Valentine VD, Bergeron MF.

Author information

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Abstract

Football players are subjected to repetitive impacts that may lead to brain injury and neurologic dysfunction. Knowledge about head impact exposure (HIE) and consequent neurologic function among youth football players is limited.

PURPOSE:

To measure and characterize HIE of youth football players throughout one season and explore associations between HIE and changes in selected clinical measures of neurologic function.

METHODS:

Twenty-two youth football players (11-13 yr) wore helmets outfitted with a Head Impact Telemetry (HIT) System to quantify head impact frequency, magnitude, duration and location. Impact data were collected for each practice (27) and game (9) in a single season. Selected clinical measures of balance, oculomotor performance, reaction time and self-reported symptoms were assessed before and after the season.

RESULTS:

The median individual head impacts per practice, per game and throughout the entire season were 9, 12 and 252, respectively. Approximately 50% of all head impacts (6183) had a linear acceleration between 10-20g, but nearly 2% were greater than 80g. Overall, the head impact frequency distributions in this study population were similar in magnitude and location as in high school and collegiate football, but total impact frequency was lower. Individual changes in neurologic function were not associated with cumulative HIE.

CONCLUSION:

This study provides a novel examination of HIE and associations with short-term neurologic function in youth football and notably contributes to the limited HIE data currently available for this population. While youth football players can experience remarkably similar head impact forces as high school players, cumulative sub-concussive HIE throughout one youth football season may not be detrimental to short-term clinical measures of neurologic function.

PMID: 25437194

NEURO DYNAMICS

Nerve excursion

Clin Biomech (Bristol, Avon). 2014 Aug 10. pii: S0268-0033(14)00192-2. doi: 10.1016/j.clinbiomech.2014.07.006.

Quantitative in vivo longitudinal nerve excursion and strain in response to joint movement: A systematic literature review.

Silva A1, Manso A1, Andrade R1, Domingues V1, Brandão MP2, Silva AG3.

Abstract

BACKGROUND:

Neural system mobilization is widely used in the treatment of several painful conditions. Data on nerve biomechanics is crucial to inform the design of mobilization exercises. Therefore, the aim of this review is to characterize normal nervous system biomechanics in terms of excursion and strain.

METHODS:

Studies were sought from Pubmed, Physiotherapy Evidence Database, Cochrane Library, Web of Science and Scielo. Two reviewers' screened titles and abstracts, assessed full reports for potentially eligible studies, extracted information on studies' characteristics and assessed its methodological quality.

FINDINGS:

Twelve studies were included in this review that assessed the median nerve (n=8), the ulnar nerve (n=1), the tibial nerve (n=1), the sciatic nerve (n=1) and both the tibial and the sciatic nerves (n=1). All included studies assessed longitudinal nerve excursion and one assessed nerve strain. Absolute values varied between 0.1mm and 12.5mm for median nerve excursion, between 0.1mm and 4.0mm for ulnar nerve excursion, between 0.7mm and 5.2mm for tibial nerve excursion and between 0.1mm and 3.5mm for sciatic nerve excursion. Maximum reported median nerve strain was 2.0%.

INTERPRETATION:

Range of motion for the moving joint, distance from the moving joint to the site of the lesion, position of adjacent joints, number of moving joints and whether joint movement stretches or shortens the nerve bed need to be considered when designing neural mobilization exercises as all of these factors seem to have an impact on nerve excursion

Median nerve motion

Man Ther. 2014 Jun 25. pii: S1356-689X(14)00123-4. doi: 10.1016/j.math.2014.06.005.

The deformation and longitudinal excursion of median nerve during digits movement and wrist extension.

Lai WK1, Chiu YT2, Law WS3.

Abstract

The use of electronic devices, such as mobile phones and computers, has increased drastically among the young generation, but the potential health effects of carpal tunnel syndrome (CTS) on university students has not been comprehensively examined. Thirty-one university students aged 18 to 25 y with no symptoms of CTS were successfully recruited in this study. By using noninvasive ultrasonography, the morphological characteristics of the median nerve of each volunteer, and the extent of its longitudinal excursion movement under experimental conditions, in which a real operating environment of electronic devices was simulated, were quantified. The results demonstrated that the median nerve at the carpal tunnel inlet was flattened during wrist extension: the flattening ratio increased from 3.40 ± 0.91 at the neutral position to 4.10 ± 1.11 at the angle of 30° and 4.09 ± 1.11 at the angle of 45° . In addition, the median nerve became swollen after the students performed rapid mobile-phone keying for 5 min, indicated by a significant increase in the cross-sectional area from $6.05 \pm 0.97 \text{ mm}^2$ to $7.56 \pm 1.39 \text{ mm}^2$. Passive longitudinal excursion was observed at the median nerve when the students performed mouse-clicking ($2.4 \pm 1.0 \text{ mm}$) and mobile-phone keying tasks ($1.7 \pm 0.6 \text{ mm}$), with the mouse-clicking task generating a greater extent of longitudinal excursion than the mobile-phone keying task did. In conclusion, the findings of the present study verify the potential harm caused by using electronic devices while maintaining an inappropriate wrist posture for a substantial period.

Copyright © 2014 Elsevier Ltd. All rights reserved. KEYWORDS: Doppler ultrasound; Excursion; Median nerve; Mobile phone

HIP**Hip cartilage**

Skeletal Radiol. 2015 Jan;44(1):97-105. doi: 10.1007/s00256-014-2013-4. Epub 2014 Oct 3.

Labral and cartilage abnormalities in young patients with hip pain: accuracy of 3-Tesla indirect MR arthrography.

Petchprapa CN1, Rybak LD, Dunham KS, Lattanzi R, Recht MP.

Abstract**OBJECTIVE:**

Assess the diagnostic accuracy of 3-T indirect magnetic resonance arthrography (iMRA) for hip cartilage and labral pathology detection using arthroscopy as the reference standard and compare it to the published performance of direct magnetic resonance arthrography (dMRA).

MATERIALS AND METHODS:

Between 2009 and 2011, 290 patients suspected of having femoroacetabular impingement underwent iMRA. Our study group consisted of 41 of these patients (17 males, mean age 35 years; 24 females, mean age 33 years) who did not have a prior history of hip surgery and who subsequently underwent arthroscopy. Two experienced musculoskeletal radiologists separately evaluated the randomized and anonymized studies for the presence and quadrant location of labral and cartilage pathology. These recorded data were compared to arthroscopic reports.

RESULTS:

Forty-one patients had labral pathology, 34 patients had acetabular and 5 patients had femoral cartilage pathology at arthroscopy. Sensitivity, specificity, accuracy, negative- and positive-predictive values for labral lesion detection were respectively 98, 99, 99, 99 and 98 %; for acetabular cartilage lesion detection they were 69, 98, 89, 87 and 95 %; for femoral cartilage lesion detection they were 69, 95, 93 and 39 %. Sensitivities of iMRA by quadrant (anteroinferior, anterosuperior, posteroinferior, posterosuperior) for the labrum were 100.0, 95.0, NA and 85.7 %, for acetabular cartilage were NA, 58.8, NA and 39.5 % and for femoral cartilage were 50.0, 33.3, 75.0 and 75.0 (%). NA indicates results not available because of the absence of findings in those quadrants. Specificities of iMRA by quadrant (anteroinferior, anterosuperior, posteroinferior, posterosuperior) for the labrum (95.0, 100.0, 95.1, 67.5 %), acetabular (100.0, 85.7, 92.6, 79.5 %) and femoral cartilage (100.0, 94.7, 96.2, 85.9 %).

CONCLUSION: *iMRA at 3 T is accurate in detecting labral pathology suggesting that it is a viable alternative to dMRA. PMID: 25277527*

KNEE**Segond fracture**

Skeletal Radiol. 2014 Dec 4.

Segond fracture: involvement of the iliotibial band, anterolateral ligament, and anterior arm of the biceps femoris in knee trauma.

De Maeseneer M1, Boulet C, Willekens I, Lenchik L, De Mey J, Cattrysse E, Shahabpour M.

Abstract**OBJECTIVE:**

To evaluate the involvement of the iliotibial band (ITB), the anterolateral ligament (ALL), and the anterior arm of the biceps femoris in MRI-diagnosed Segond fracture and to evaluate other associated findings of Segond fracture.

MATERIALS AND METHODS:

We retrospectively reviewed the MRI of 13 cases of Segond fracture. The studies included proton density-weighted, T2-weighted, and proton density-weighted with fat saturation images in the three planes. We studied 2 cadaveric specimens with emphasis on the ALL. One cadaveric specimen was dissected while the other was sectioned in the sagittal plane.

RESULTS:

The mean age of the patients was 36 years (range, 17-52). There were 7 men and 6 women. The mean size of the Segond bone fragment was $8 \times 10 \times 2$ mm. The distance from the tibia varied from 2 to 6 mm. Associated findings included anterior cruciate ligament (ACL) tear ($n = 13$), medial collateral ligament (MCL) tear ($n = 8$), meniscocapsular tear of the posterior horn of the medial meniscus ($n = 5$), and posterolateral corner involvement ($n = 4$). Bone marrow edema involved the mid-lateral femoral condyle and the posterior tibial plateau on both the medial and the lateral side. Edema at the Segond area was seen, but was limited. Fibular head edema was also seen. The ITB (11 out of 13) and ALL (10 out of 13) inserted on the Segond bone fragment. The anterior arm of the biceps tendon did not insert on the Segond fracture.

CONCLUSION:

Associated findings of Segond fracture include ACL tear, MCL tear, medial meniscus tear, and posterolateral corner injury. Both the ITB and the ALL may be involved in the Segond avulsion. The anterior arm of the biceps femoris tendon is not involved.

PMID: 25468067

Marathon running and impact on knee

Quantitative T2* assessment of knee joint cartilage after running a marathon

European Journal of Radiology, 12/04/2014 Clinical Article

Hesper T, et al.

In this study, the authors aim to explore the effect of repetitive joint loading on the T2* assessment of knee joint cartilage. It appears that repetitive joint loading has a transient influence on the T2* values. However, this effect is small and probably not clinically relevant. The low T2* values in the medial tibial plateau may be related to functional demand or early cartilage degeneration.

KNEE/ACL**Compensations during squatting**

Am J Sports Med. 2014 Dec;42(12):2979-87. doi: 10.1177/0363546514552630. Epub 2014 Oct 10.

Squatting mechanics in people with and without anterior cruciate ligament reconstruction: the influence of graft type.

Bell DR¹, Kulow SM², Stiffler MR², Smith MD².

Abstract

BACKGROUND: *Single-legged squat mechanics change after anterior cruciate ligament (ACL) reconstruction and rehabilitation, but it is unclear if changes in squat mechanics are graft specific.*

PURPOSE: *To investigate graft differences in biomechanics of the knee, hip, and trunk during the single-legged squat in patients with ACL-reconstructed knees, determine if these factors were associated with deficits in knee extension moment, and determine if subjective knee function and squat biomechanics are related.*

STUDY DESIGN: *Cross-sectional study; Level of evidence, 3.*

METHODS:

A total of 106 individuals were grouped based on surgical status and graft type (51 control, 34 bone-patellar tendon-bone [BPTB], 21 ipsilateral semitendinosus and gracilis autograft [ISGA]). Motion capture interfaced with force plates was used to capture single-legged squat performance in the ACL reconstructed and dominant control limbs. Variables were captured at peak knee flexion.

RESULTS:

Controls exhibited greater knee extension moment ($P = .04$), knee flexion ($P = .002$), and hip adduction angles ($P = .04$) compared with the reconstructed groups. The ISGA group demonstrated greater forward ($P = .01$) and lateral ($P = .002$) trunk flexion over the reconstructed limb. Summated extension moment did not differ between groups ($P = .42$). Knee extension moment was correlated with lateral trunk flexion ($r = -0.31$, $P = .03$) in the control group and knee flexion angle ($r = -0.44$, $P = .04$) in the ISGA group. Subjective knee function scores were correlated with lateral trunk flexion ($r = -0.45$, $P = .008$) in the BPTB group and with hip adduction angle ($r = -0.46$, $P = .04$) and hip extension moment ($r = 0.48$, $P = .03$) in the ISGA group.

CONCLUSION:

Knee and hip biomechanics were related to surgical status but not graft type. Increased forward and lateral trunk motion in the ISGA group may be a mechanism to protect the knee by minimizing motion during squatting or related to surgical selection bias. Secondary findings (summated extensor moments and correlations) most likely represent a strategy to shift the squat demands from the knee to the hip.

CLINICAL RELEVANCE:

Clinicians should target these neuromuscular deficits during rehabilitation and training programs after ACL reconstruction.

© 2014 The Author(s). KEYWORDS: IKDC; knee extension moment; knee function; summated moment; trunk flexion PMID: 25305265

Impact of non-copers

J Knee Surg. 2014 Dec 1.

Is Anterior Cruciate Reconstruction Superior to Conservative Treatment?

Dawson AG¹, Hutchison JD², Sutherland AG³.

Abstract

Not all patients who have a rupture of the anterior cruciate ligament (ACL) elect to have surgical reconstruction. The aim of this study was to assess the short-to-medium-term results of patients who chose conservative management in comparison to patients who had reconstructive surgery within the same time period. Sixty-three patients with an ACL injury were retrospectively studied. Forty patients were managed, according to patient choice, with ACL reconstruction and 23 conservatively. Four validated questionnaires were used to assess general and knee-specific function in a cohort with a median age of 32 years and a median follow-up period of 38 months. Patients were matched on demographic variables except for gender. There were no statistically significant differences in the outcome measures, and the majority of patients would proceed with the same treatment in the event the control leg became injured. Patients who elect to have conservative management of an ACL rupture can achieve similar function and satisfaction to those who elect to have reconstruction. Until a large randomized controlled trial is conducted, patients need to be made aware of the merits of both management strategies and the lack of evidence of superiority of one over the other.

Thieme Medical Publishers 333 Seventh Avenue, New York, NY 10001, USA.

PMID: 25438034

MENISCUS

Meniscal root

Am J Sports Med. 2014 Dec;42(12):3016-30. doi: 10.1177/0363546514524162. Epub 2014 Mar 12.

Meniscal root tears: significance, diagnosis, and treatment.

Bhatia S¹, LaPrade CM², Ellman MB³, LaPrade RF⁴.

Abstract

Meniscal root tears, less common than meniscal body tears and frequently unrecognized, are a subset of meniscal injuries that often result in significant knee joint disorders. The meniscus root attachment aids meniscal function by securing the meniscus in place and allowing for optimal shock-absorbing function in the knee. With root tears, meniscal extrusion often occurs, and the transmission of circumferential hoop stresses is impaired. This alters knee biomechanics and kinematics and significantly increases tibiofemoral contact pressure. In recent years, meniscal root tears, which by definition include direct avulsions off the tibial plateau or radial tears adjacent to the root itself, have attracted attention because of concerns that significant meniscal extrusion dramatically inhibits normal meniscal function, leading to a condition biomechanically similar to a total meniscectomy. Recent literature has highlighted the importance of early diagnosis and treatment; fortunately, these processes have been vastly improved by advances in magnetic resonance imaging and arthroscopy. This article presents a review of the clinically relevant anatomic, biomechanical, and functional descriptions of the meniscus root attachments, as well as current strategies for accurate diagnosis and treatment of common injuries to these meniscus root attachments.

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KEYWORDS: *anterior root; lateral meniscus; medial meniscus; meniscal repair; meniscal tear; meniscus; meniscus root; posterior root* PMID: 24623276

PATELLA**Exercise vs. education**

Br J Sports Med. 2014 Nov 11. pii: bjsports-2014-093929. doi: 10.1136/bjsports-2014-093929.

Exercise during school hours when added to patient education improves outcome for 2 years in adolescent patellofemoral pain: a cluster randomised trial.

Rathleff MS¹, Roos EM², Olesen JL³, Rasmussen S⁴.

Abstract**BACKGROUND:**

Patellofemoral pain (PFP) is common among adolescents and associated with long-lasting pain and disability. Patient education and exercise therapy are commonly used treatments in primary and secondary care but the effect of these treatments in adolescents is unknown. We aimed to determine the effect of exercise therapy as an add-on therapy to patient education compared with education alone.

METHODS:

121 adolescents from 15-19 years of age were cluster randomised to patient education or patient education combined with exercise therapy. Patient education covered self-management of pain and information on PFP. Exercise therapy consisted of supervised exercises on school premises (3/week for 3 months) and instructions on home-based exercises. Adherence to exercises was assessed as attendance and weekly text messages. Primary outcome measure was self-reported recovery (seven-point Likert scale) at 12 months with additional follow-ups at 3, 6 and 24 months.

RESULTS:

Adolescents randomised to patient education and exercise therapy were more likely to have recovered at 12 months (OR, 1.73, 95% CI 1.02 to 2.93, number needed to treat (NNT) of 11). Similar results were observed at 3 and 6 months (OR 1.88 and 1.43) while the effect was further increased at 24 months (OR of 2.52, NNT of 5). A higher total number of weekly exercise sessions increased the odds of recovery.

CONCLUSIONS:

In adolescent PFP, the addition of exercise therapy for 3 months was more effective than patient education alone. The effect was apparent at 3 months and increased up to 2 years. Adherence to exercises was important and improved the odds of recovery.

TRIAL REGISTRATION NUMBER:

clinicaltrials.gov reference: NCT01438762.

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KEYWORDS: *Adolescent; Exercise rehabilitation; Knee PMID: 25388552*

OSTEOARTHRITIS/KNEE

OA and pain

Association of radiographic osteoarthritis, pain on passive movement and knee range of motion: A cross-sectional study

Manual Therapy , 12/01/2014 Clinical Article

Hilfiker R, et al.

The objective of this study is to examine whether deficits in knee extension or flexion were associated with radiographic severity and pain during clinical examination in persons with knee pain or radiographic features of osteoarthritis. The data suggest that pain during passive movement, which may be an indicator of reversible soft-tissue changes, e.g., reversible through physical therapy, is independently associated with reduced flexion and extension of the knee.

Methods

- Participants with knee pain or radiographic features of osteoarthritis were included.
- The authors assessed the range of passive knee flexion and extension, pain on movement and Kellgren and Lawrence (K/L) grades.
- Odds ratios were calculated for the association between range of motion and pain as well as radiographic severity.

Results

- Of 1117 participants with a clinical assessment, 805 participants and 1530 knees had complete data and were used for this analysis.
- Pain and radiographic changes were associated with limited range of motion.
- In knees with pain on passive movement, extension and flexion were reduced per one grade of K/L by -1.4° (95% CI -2.2 to -0.5) and -1.6° (95% CI -2.8 to -0.4), while in knees without pain the reduction was -0.3° (95% CI -0.6 to -0.1) (extension) and -1.1° (-1.8 to -0.3) (flexion).
- The interaction of pain with K/L was significant ($p = 0.021$) for extension but not for flexion ($p = 0.333$)

HALLUX VALGUS

Proximal fixation

Foot Ankle Int. 2014 Nov 20. pii: 1071100714559072.

Staple Fixation for Akin Proximal Phalangeal Osteotomy in the Treatment of Hallux Valgus Interphalangeus.

Neumann JA¹, Reay KD², Bradley KE³, Parekh SG⁴.

Abstract

BACKGROUND:

The Akin proximal phalangeal osteotomy is commonly used in conjunction with metatarsal osteotomies to treat hallux valgus. Multiple fixation methods including suture, wire, screw, and staple fixation have been described. The aims of this study were to assess the intraoperative and postoperative complications and to evaluate short-term postoperative outcomes in patients who underwent Akin osteotomy with staple fixation.

METHODS:

Forty-four patients (51 feet) with painful hallux valgus were retrospectively reviewed at an average of 40.4 ± 15.8 (range, 25.9 to 79.9) weeks following an Akin osteotomy with staple fixation. Patient reported preoperative and postoperative Visual Analog Score (VAS) (0 to 10, 0 = no pain) was recorded. Level of activity was reported postoperatively. Hallux valgus angles (HVAs), intermetatarsal angles (IMAs), and hallux valgus interphalangeus angles (IPAs) were evaluated on preoperative as well as final postoperative radiographs. Postoperative clinical and radiographic examinations were used to evaluate for complications.

RESULTS:

Mean VAS improved from 4.4 ± 2.6 to 1.0 ± 1.2 ($P < .001$). Activity level was classified as ability to bear weight as tolerated 3/51 (5.9%), ambulate 1 to 4 blocks 2/51 (3.9%), ambulate a minimum of 6 blocks 18/51 (35.3%), and ambulate an unlimited distance 28/51 (59.4%). Average HVA, IMA, and IPA improved from 25.6 ± 10.0 degrees to 14.1 ± 8.1 degrees ($P < .001$), 13.1 ± 4.6 degrees to 8.0 ± 3.0 degrees ($P < .001$), and 7.9 ± 3.4 degrees to -3.1 ± 6.4 degrees ($P < .001$), respectively. No major postoperative complications, including infections, nonunions, or recurrent deformities, were recorded. Two patients sustained breaches of the lateral cortex, but this was without appreciable complication. Three patients (5.9%) reported unilateral proximal-medial great phalanx tenderness. There was 1 revision for persistent deformity, specifically in the HVA and IPA angles.

CONCLUSION:

Akin osteotomy with staple fixation was a safe and effective procedure as part of a hallux valgus correction with improvement in pain and hallux valgus deformity with a low risk for complications.

LEVEL OF EVIDENCE: Level IV, case series.

© The Author(s) 2014. KEYWORDS: bunion; hallux valgus; osteotomy PMID: 25413308

MANUAL THERAPY

Massage and hematoma

Spine (Phila Pa 1976). 2014 Dec 1;39(25):E1545-8. doi: 10.1097/BRS.0000000000000629.

Acute spinal subdural hematoma after vigorous back massage: a case report and review of literature.

Maste P1, Paik SH, Oh JK, Kim YC, Park MS, Kim TH, Kwak YH, Jung JK, Lee HW, Kim SW.

Abstract

STUDY DESIGN:

A case report and review of literature.

OBJECTIVE:

We report on a patient with traumatic spinal subdural hematoma after vigorous back massage while on vacation.

SUMMARY OF BACKGROUND DATA:

Traumatic spinal subdural hematoma is extremely rare, and to our knowledge, this is the first case reported after violent back massage. We emphasize a high index of suspicion for early recognition and treatment for a good neurological recovery.

METHODS:

A 41-year-old male was brought to our hospital with severe back pain, motor and sensory impairments of the bilateral lower extremities, and urinary dysfunction after vigorous back massage. Magnetic resonance images revealed an acute spinal subdural hematoma in the thoracolumbar region. After careful monitoring of his neurological status, the patient was successfully managed with conservative treatment.

RESULTS:

After 2 weeks of hospitalization, complete motor power recovery was achieved with only minor sensory deficit. At a follow-up of more than 12 months, the patient has no residual neurological deficits.

CONCLUSION:

Spinal subdural hematoma secondary to physical trauma is quite rare. This case brings new information that traumatic spinal subdural hematoma can be caused by violent massage

BET

Training and LBP

Arch Phys Med Rehabil. 2014 Nov 26. pii: S0003-9993(14)01270-2. doi: 10.1016/j.apmr.2014.11.007.

The effect of a self-determination theory-based communication skills training program on physiotherapists' psychological support for their patients with chronic low back pain: A randomized controlled trial.

Murray A1, Hall AM1, Williams GC2, McDonough SM3, Ntoumanis N4, Taylor IM5, Jackson B6, Matthews J1, Hurley DA1, Lonsdale C7.

Abstract

OBJECTIVE:

To examine communication skills training effects on physiotherapists' supportive behavior during clinical practice.

DESIGN:

Randomized trial.

SETTING:

Hospital outpatient physiotherapy clinics in Dublin, Ireland.

PARTICIPANTS:

24 physiotherapists and 24 patients with chronic low back pain. Interventions: 2 hospital clinics were randomly assigned to the intervention arm. Physiotherapists (n = 12) received 8 hours of communication skills training focused on supporting patients' psychological needs. Physiotherapists (n = 12) from 2 other hospital clinics formed a waitlist control arm.

MAIN OUTCOME MEASURES:

Verbal communication between each physiotherapist and a patient was audio recorded and independent, blinded raters used the the Health Care Climate Questionnaire (HCCQ) to assess physiotherapists' needs support behavior (primary outcome).

RESULTS:

Independent raters' HCCQ scores favored the intervention arm (p < .01, Cohen's d = 2.27).

CONCLUSIONS:

Compared with controls, independent ratings demonstrated that physiotherapists who completed CONNECT were seen to provide greater support for patients' needs in a single assessed session. Long-term maintenance of this supportive behavior should be examined

CORE**Core exercises**

Br J Sports Med. 2014 Nov 10. pii: bjsports-2013-093262. doi: 10.1136/bjsports-2013-093262.

The efficacy of a supervised and a home-based core strengthening program in adults with poor core stability: a three-arm randomized controlled trial.

Chuter VH¹, Janse de Jonge XA², Thompson BM³, Callister R⁴.

Abstract**BACKGROUND:**

Poor core stability is linked to a range of musculoskeletal pathologies and core-strengthening programmes are widely used as treatment. Treatment outcomes, however, are highly variable, which may be related to the method of delivery of core strengthening programmes. We investigated the effect of identical 8 week core strengthening programmes delivered as either supervised or home-based on measures of core stability.

METHODS:

Participants with poor core stability were randomised into three groups: supervised (n=26), home-based (n=26) or control (n=26). Primary outcomes were the Sahrman test and the Star Excursion Balance Test (SEBT) for dynamic core stability and three endurance tests (side-bridge, flexor and Sorensen) for static core stability. The exercise programme was devised and supervised by an exercise physiologist.

RESULTS:

Analysis of covariance on the change from baseline over the 8 weeks showed that the supervised group performed significantly better on all core stability measures than both the home-based and control group. The home-based group produced significant improvements compared to the control group in all static core stability tests, but not in most of the dynamic core stability tests (Sahrman test and two out of three directions of the SEBT).

CONCLUSIONS:

Our results support the use of a supervised core-strengthening programme over a home-based programme to maximise improvements in core stability, especially in its dynamic aspects. Based on our findings in healthy individuals with low core stability, further research is recommended on potential therapeutic benefits of supervised core-strengthening programmes for pathologies associated with low core stability.

TRIAL REGISTRATION NUMBER:

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KEYWORDS: *Core stability; Exercise rehabilitation; Intervention efficacy; Training PMID: 25385166*

Core muscles

Man Ther. 2004 Nov;9(4):203-10.

Anatomical relationships between selected segmental muscles of the lumbar spine in the context of multi-planar segmental motion: a preliminary investigation.

Jemmett RS1, Macdonald DA, Agur AM.

Abstract

In the last decade, concepts regarding spinal stability have been redefined. Whereas traditional stability models considered only the integrity of the intervertebral disc and spinal ligaments, mechanisms contributing to spinal stability are now thought to include neural and muscular elements. Lumbar muscles capable of generating intersegmental stiffness are considered necessary for the control of multi-planar segmental spinal motion. The transversus abdominis, psoas, quadratus lumborum and multifidus have each been described functionally as contributing to segmental motion control in the lumbar spine. However, the fundamental anatomy of these muscles has not been fully established nor have their architectural characteristics as a functional group been explored. A dissection of the lumbar spine was undertaken to document the attachments of the deep vertebral muscles and illustrate their group architectural characteristics in the context of multi-planar segmental motion. The transversus abdominis, psoas, quadratus lumborum and multifidus were each noted to have segmental attachment patterns in the lumbar spine. As a group, they surround the lumbar motion segments from the anterolateral aspect of a vertebral body to the spinous process. A hypothetical role for this muscle group in maintaining lumbar spine stability is discussed as are suggestions for future research

POSTURE

Postural pain communications

Pain. 2014 Aug 26. pii: S0304-3959(14)00378-9. doi: 10.1016/j.pain.2014.08.019.

Pain communication through body posture: The development and validation of a stimulus set.

Walsh J1, Eccleston C2, Keogh E2.

Abstract

Pain can be communicated nonverbally through facial expressions, vocalisations, and bodily movements. Most studies have focussed on the facial display of pain, whereas there is little research on postural display. Stimulus sets for facial and vocal expressions of pain have been developed, but there is no equivalent for body-based expressions. Reported here is the development of a new stimulus set of dynamic body postures that communicate pain and basic emotions. This stimulus set is designed to facilitate research into the bodily communication of pain. We report a 3-phase development and validation study. First 16 actors performed affective body postures for pain, as well as happiness, sadness, fear, disgust, surprise, anger, and neutral expressions. Second, 20 observers independently selected the best image stimuli based on the accuracy of emotion identification and valence/arousal ratings. Third, to establish reliability, this accuracy and valence rating procedure was repeated with a second independent group of 40 participants. A final set of 144 images with good reliability was established and is made available. Results demonstrate that pain, along with basic emotions, can be communicated through body posture. Cluster analysis demonstrates that pain and emotion are recognised with a high degree of specificity. In addition, pain was rated as the most unpleasant (negative valence) of the expressions, and was associated with a high level of arousal. For the first time, specific postures communicating pain are described. The stimulus set is provided as a tool to facilitate the study of nonverbal pain communication, and its possible uses are discussed.

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KEYWORDS: *Body posture; Communication; Nonverbal behaviour; Pain PMID: 25168671*

ATHLETICS**Sports hernia management**

Hernia. 2014 Nov 8.

The management of sportsman's groin hernia in professional and amateur soccer players: a revised concept.

Kopelman D¹, Kaplan U, Hatoum OA, Abaya N, Karni D, Berber A, Sharon P, Peskin B.

Abstract**BACKGROUND:**

Chronic groin pain appears in athletes with a diverse etiology. In a select few, it can be defined as a sportsman's hernia, that may be related, among other pathologies, to weakness of the posterior inguinal wall and may successfully respond to surgery.

HYPOTHESIS:

Surgical repair of the sportsman's hernia is associated with good functional outcomes, if the diagnosis is based on meticulous examination and follows a simple selection flowchart.

STUDY DESIGN:

Prospective case cohort study.

METHODS:

The study assessed patients recruited from 2006 until the present assessed by a dedicated team with clinical and radiographic features of a sportsman's hernia who had failed a specified period of conservative therapies. Surgery was performed using a tension-free mesh open inguinal hernia repair.

RESULTS:

Of 246 male patients with chronic groin pain, 51 underwent surgery (mean age 20.7 years, range 14-36 years) with 58 inguinal procedures performed. Of the operated group, seven underwent bilateral surgery with a direct hernia found in 9/58 operated sides (15.5 %), an indirect hernial sac in 8/58 (14 %) and a direct and indirect hernia being found in 3/58 (5 %) of operated sides. There was no post-operative morbidity (median follow-up 36.1 months; range 1-74 months), with two failures (3.45 % of operated sides). All other patients were asymptomatic, returned to full sports activity within 4.3 weeks (range 3-8 weeks) after surgery, and required no analgesics or further treatment.

CONCLUSION:

Selective surgical hernia repair, based on meticulous anamnesis and physical examination is effective in the management of chronic groin pain in athletes.

PMID: 25380561

COMPLEX REGIONAL PAIN**Skin temperature regulation****Diurnal and nocturnal skin temperature regulation in chronic Complex Regional Pain Syndrome****The Journal of Pain, 12/05/2014 Clinical Article**

Schilder JCM, et al.

Abstract

Skin temperature changes due to vasomotor disturbances are important features of complex regional pain syndrome (CRPS). Since this phenomenon has only been studied under controlled conditions, information on daily circadian variability is lacking. Also, studies in chronic CRPS patients with abnormal posturing, in which coldness of the affected extremity is more common, do not exist. We examined the response to external heating as well as circadian temperature changes over several days in the affected legs of 14 chronic CRPS patients with abnormal posturing, and 17 controls. Skin temperatures were recorded hourly for 14 days using wireless sensors. Although the patients' affected extremities were significantly colder before external heating, the vasodilatory response was similar in both groups. Additionally, median skin temperature differences between both legs and their variability was larger in patients than in controls during the day, but not during the night. These findings indicate that the mechanisms underlying impaired skin circulation in CRPS during daytime are reversible under certain circumstances. The large variation in skin temperature differences during the day questions the validity of using a single measurement in the diagnosis of CRPS and our results indicate that only temperature differences $>1.0^{\circ}\text{C}$ should be considered to reflect vasomotor disturbances.

Perspective

This paper shows that chronic CRPS patients have a normal vasodilatory response to external heating, and that skin temperature differences between the affected and unaffected lower limbs, which were highly variable during daytime, disappeared during sleep. This indicates that part of the vasomotor regulation in these patients is still functional.

FIBROMYALGIA

Psychological characteristics

The relationship among psychological and psychophysiological characteristics of fibromyalgia patients.

Thieme K1, Turk DC2, Gracely RH3, Maixner W3, Flor H4.

Abstract

This study examined the relationship of psychophysiological response patterns in fibromyalgia (FM) with psychological characteristics and comorbid mental disorders. Surface electromyographic data (EMG), systolic (SBP) and diastolic blood pressure (DBP), heart rate (HR), and skin conductance levels (SCL) were recorded continuously during baseline, stress, and relaxation tasks. Cluster analysis revealed 4 subgroups of patients who differed on pain characteristics, cognitive, affective, and behavioral responses to pain and stress. The largest group (46.7%) was characterized by elevated BP levels and stress reactivity (a disposition assumed to be a vulnerability factor for the development of diseases), associated with pain, anxiety, physical interference, low activity, and pain behaviors. A second group (41.6%) showed low baseline BP and reactivity, and high activity and stress. A third group (9.2%) displayed high baseline SCL, reactivity and depression, and a fourth small group (2.5%) with elevated EMG baseline and reactivity with high levels of anxiety and depression. These data suggest that unique psychophysiological response patterns are associated with psychological coping and mental disorders in FM patients. The identification of the mechanisms that contribute to these group differences will further our understanding of the mechanisms involved in the development and maintenance of FM and suggest differential treatment strategies.

PERSPECTIVE:

This article presents psychological characteristics and comorbidity with mental disorders of psychophysiological subgroups of fibromyalgia patients. This mechanistic analysis will assist scientific identification of systems-based pathways that contribute to autonomic and stress mechanisms that mediate chronic pain. Demonstration of distinct, homogeneous subgroups is an important step towards personalized, mechanism-oriented treatments

Auditory stimuli

Eur J Pain. 2014 Nov 28. doi: 10.1002/ejp.627.

Filtering out repetitive auditory stimuli in fibromyalgia: A study of P50 sensory gating.

Carrillo-de-la-Peña MT1, Triñanes Y, González-Villar A, Gómez-Perretta C, García-Larrea L.

Abstract***BACKGROUND:***

It has been suggested that fibromyalgia (FM) patients show increased sensory processing of nociceptive and non-nociceptive stimuli and also reduced habituation. Although this pattern of increased reactivity has been established for the somatosensory modality, its generalization to other sensory modalities remains controversial.

METHODS:

Auditory evoked potentials were obtained using a paired-stimuli paradigm from a sample of 52 FM female patients and 55 healthy women matched for age and socio-economic status. Sensory gating of the P50 component, as indicated by P50 suppression rates to the second identical stimuli, was analysed in relation to clinical indices of FM, including algometry of tender points and a number of self-reported questionnaires.

RESULTS:

Sensory gating mechanisms in FM patients proved to be normal, robust and as efficient as those recorded in control subjects. There was no correlation between P50 suppression rates and indices of clinical or experimental (threshold or tolerance) pain. In addition, P50 sensory gating was not related to the other main symptoms of FM, including fatigue, sleep dysfunction or co-morbid depression, nor to hypersensitivity to noise or headache.

CONCLUSIONS:

The results indicate that FM patients do not present significant deficits in early sensory gating when processing auditory stimuli, and therefore challenge the 'generalized hypersensitivity' hypothesis of FM.

J Pain. 2014 Nov 26. pii: S1526-5900(14)01041-4. doi: 10.1016/j.jpain.2014.11.009

PHARMACOLOGY**Opioid use and LBP**

Spine (Phila Pa 1976). 2014 Dec 1;39(25):E1524-30. doi: 10.1097/BRS.0000000000000622.

Preoperative opioid use and its association with perioperative opioid demand and postoperative opioid independence in patients undergoing spine surgery.

Armaghani SJ, Lee DS, Bible JE, Archer KR, Shau DN, Kay H, Zhang C, McGirt MJ, Devin CJ.

Abstract***STUDY DESIGN:***

Prospective cohort.

OBJECTIVE:

To assess whether preoperative opioid use is associated with increased perioperative opioid demand and postoperative opioid independence in patients undergoing spine surgery.

SUMMARY OF BACKGROUND DATA:

Previous work has demonstrated increased opioid requirements during the intraoperative and immediate postoperative period in patients with high levels of preoperative opioid use. Despite this, they remain a common agent class used for the management of pain in patients prior to spine surgery.

METHODS:

A total of 583 patients were included. Self-reported daily opioid consumption was obtained preoperatively and converted into morphine equivalent amounts and opioid use was recorded at the 12-month postoperative time. Intraoperative and immediate postoperative opioid demand was calculated. Linear regression analyses for intraoperative and immediate postoperative opioid demand while logistic regression analyses for opioid independence at 12 months including relevant covariates such as depression and anxiety were performed.

RESULTS:

The median preoperative morphine equivalent amount for the cohort was 8.75 mg, with 55% of patients reporting some degree of opioid use. Younger age, more invasive surgery, anxiety, and primary surgery were significantly associated with increased intraoperative opioid demand ($P < 0.05$). Younger age, anxiety, and greater preoperative opioid use were significantly associated with increased immediate postoperative opioid demand ($P < 0.05$). More invasive surgery, anxiety, revision surgery, and greater preoperative opioid use were significantly associated with a decreased incidence of opioid independence at 12 months postoperatively ($P < 0.01$).

CONCLUSION:

Greater preoperative opioid use prior to undergoing spine surgery predicts increased immediate postoperative opioid demand and decreased incidence of postoperative opioid independence. Psychiatric diagnoses in those using preoperative opioids were predictors of continued opioid use at 12 months. Patients may benefit from preoperative counseling that emphasizes minimizing opioid use prior to undergoing spine surgery.

LEVEL OF EVIDENCE: 2