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2. LBP

Motor control and LBP

J Manipulative Physiol Ther. 2016 Sep 3. pii: S0161-4754(16)30037-9. doi: 10.1016/j.jmpt.2016.07.006.

Effects of Motor Control Exercise Vs Muscle Stretching Exercise on Reducing Compensatory Lumbopelvic Motions and Low Back Pain: A Randomized Trial.

Park KN¹, Kwon OY², Yi CH³, Cynn HS³, Weon JH⁴, Kim TH⁵, Choi HS⁶.

OBJECTIVES:

The purpose of this study was to investigate the effectiveness of a 6-week motor control exercise (MCE) vs stretching exercise (SE) on reducing compensatory pelvic motion during active prone knee flexion (APKF) and intensity of low back pain.

METHODS:

Thirty-six people in the lumbar-rotation-extension subgroup were randomly assigned equally into 2 exercise groups (18 people in each an MCE or SE group). A 3-dimensional motion-analysis system was used to measure the range and onset time of pelvic motion and knee flexion during APKF. Surface electromyography was used to measure the muscle activity and onset time of the erector spinae and the hamstrings during APKF. The level of subjective low back pain was measured using a visual analog scale.

RESULTS:

The MCE group had more significant decreases in and delay of anterior pelvic tilt, pelvic rotation, and erector spinae muscle activity during APKF, as well as reduced intensity of low back pain compared with the SE group ($P < .05$).

CONCLUSIONS:

For rehabilitation in patients in the lumbar-rotation-extension subgroup, MCE was more effective than SE in reducing compensatory pelvic motion and muscle activity during APKF and minimizing low back pain.

Extensor strength in LBP elderly

Eur Spine J. 2016 Sep 6.

Diagnostic value of trunk flexion-extension testing in old chronic low back pain patients.

Kienbacher T¹, Fehrmann E², Habenicht R², Oeffel C², Kollmitzer J^{2,3}, Mair P^{2,4}, Ebenbichler G^{2,5}.

PURPOSE:

Dynamic trunk flexion-extension testing has been proven to objectively diagnose low back pain in persons under the age of 60 years but older persons have difficulty complying with standardized movement velocity.

METHODS:

190 patients and 71 matched healthy volunteers (18-90 years of age) performed modified testing by holding static positions at standing, half, and full trunk flexion.

RESULTS:

Lumbar extensor muscle activity in isometric positions was significantly higher in patients with higher activity in the oldest (60-90 years) and the middle-aged (40-59 years) but not in the youngest (18-39 years) subgroups compared to normal. There were no differences in gross trunk range of motion, half flexion relaxation ratio, proprioception, muscle activity differences between positions, and fear-avoidance behavior. The diagnostic accuracy as expressed by the area under the curve was fair (0.74).

CONCLUSIONS:

Lumbar extensor muscle activity demonstrated moderate to good diagnostic value in old patients.

KEYWORDS:

Chronic back pain; Electromyography; Healthy volunteers; Kinematics; Proprioception

Sitting on Swiss balls

Spine (Phila Pa 1976). 2016 Sep 15;41(18):E1074-80. doi: 10.1097/BRS.0000000000001576.

The Effect of Sitting on Stability Balls on Nonspecific Lower Back Pain, Disability, and Core Endurance: A Randomized Controlled Crossover Study.

Elliott TL¹, Marshall KS, Lake DA, Wofford NH, Davies GJ.

STUDY DESIGN:

Experimental randomized crossover.

OBJECTIVE:

The aim of the study was to determine whether sitting on a ball for 90 min/d instead of a chair has an effect on low back pain (LBP), low back disability, and/or core muscle endurance.

SUMMARY OF BACKGROUND DATA:

LBP may result from prolonged sitting. It has been proposed that replacing chairs with stability balls can diminish LBP in those who sit for prolonged periods. Research on the topic is sparse and inconclusive.

METHODS:

A total of 90 subjects (university students, staff, and faculty, ages 18-65, who sit ≥ 4 hr/d) were randomly assigned to the intervention or control group for the first part of the study. Baseline data were collected: Oswestry Disability Index, a numerical pain rating scale for LBP, and four core muscle endurance tests. For 8 weeks, the control group sat on their usual chair. The intervention group sat on stability balls 5 d/wk, increasing up to 90 min/d. Baseline measurements were repeated postintervention. After a washout period, subjects switched groups, and the procedures were repeated-70 completed participation in control group and 76 in intervention group.

RESULTS:

There were no statistically significant differences for pain or disability in either group ($P > 0.05$). Changes in isometric trunk flexion ($P = 0.001$), nondominant side plank ($P = 0.008$), and Sorensen ($P = 0.006$) endurance scores were significant within the intervention group but not the control group. Between-group comparisons revealed a significant difference for isometric trunk flexion ($P = 0.005$) and Sorensen endurance times ($P = 0.010$). Analysis also showed that ball-sitting did not prevent an increase in LBP over the 8-week period.

CONCLUSION:

Ball-sitting had no significant effects on LBP or associated disability, but did improve core endurance in the sagittal plane. Although ball-sitting may be useful as an adjunct treatment for LBP when core muscles are involved, clinicians should rely on other, evidence-based treatments for LBP

Goal setting and LBP

Spine (Phila Pa 1976). 2016 Sep 15;41(18):1405-13. doi: 10.1097/BRS.0000000000001545.

Patient-led Goal Setting: A Pilot Study Investigating a Promising Approach for the Management of Chronic Low Back Pain.

Gardner T¹, Refshauge K, McAuley J, Goodall S, Hübscher M, Smith L.

STUDY DESIGN:

A prospective, single-arm, pre-postintervention study.

OBJECTIVE:

The aim of this study was to test the preliminary effectiveness of a patient-led goal-setting intervention on improving disability and pain in chronic low back pain.

SUMMARY OF BACKGROUND DATA:

An effective intervention for the treatment of chronic low back pain remains elusive despite extensive research into the area. An intervention using patient-centered goal setting to drive intervention strategies and encourage self-management for patients suffering chronic low back was developed.

METHODS:

A single group longitudinal cohort pilot study was conducted. Twenty participants (male=nine) experiencing chronic low back pain were involved in a patient-led goal-setting intervention, facilitated by a physiotherapist over a 2-month period with two monthly follow-up sessions after treatment conclusion. Participants, guided by the therapist, identified problem areas of personal importance, defined goals, and developed evidence-based strategies to achieve the goals. Participants implemented the strategies independently between sessions. Primary outcome measures of disability and pain intensity were measured at baseline, 2, and 4 months. Secondary measures of quality of life, stress and anxiety, self-efficacy, and fear of movement were also taken.

RESULTS:

Significant improvements (repeated analysis of variance $P < 0.05$) were seen in measures of disability, pain, fear avoidance, quality of life, and self-efficacy over the period of intervention and were maintained for a further 2 months after treatment conclusion.

CONCLUSION:

This intervention is novel because the goals set are based on patients' personal preferences, and not on treatment guidelines. Our findings confirm that a patient-centered goal-setting intervention is a potentially effective intervention for the management of chronic low back pain showing significant improvements in both quality of life and pain intensity.

Affect and LBP

Clin J Pain. 2016 Oct;32(10):907-14. doi: 10.1097/AJP.0000000000000350.

Affect and Low Back Pain: More to Consider Than the Influence of Negative Affect Alone.

Hassett AL¹, Goesling J, Mathur SN, Moser SE, Brummett CM, Sibille KT.

OBJECTIVES:

Affect balance style, a measure of trait positive affect (PA) and negative affect (NA), is predictive of pain and functioning in fibromyalgia and healthy individuals. The purpose of this study was to evaluate the distribution of affect balance styles and the relationship between these styles and clinical factors in low back pain.

METHODS:

In this cross-sectional study, patients with low back pain (N=443) completed questionnaires and were categorized as having 1 of 4 distinct affect balance styles: Healthy (high levels of PA and low levels of NA), Low (low PA/low NA), Reactive (high PA/high NA), and Depressive (low PA/high NA). Comparisons between groups were made in regard to pain, functioning, and psychiatric comorbidity.

RESULTS:

High NA was observed in 63% (n=281), whereas low PA was present in 81% (n=359). We found that having a Depressive style was associated with greater pain severity, increased odds for comorbid fibromyalgia, and worse functioning compared with having a Healthy or Low style. Yet, those with a Low style were at increased risk for depression compared with a Healthy style, whereas patients with a Reactive style had similar levels of pain, functioning, and depression as those with a Healthy affective style.

CONCLUSIONS:

Our study revealed that there are important differences between trait affect balance styles in regard to pain, mood, and functioning in low back pain. Findings related to Reactive and Low affective styles suggest that relationships between affect, pain, and disability in low back pain extend beyond considering NA alone.

3. DISC

Modic changes

The relationship between Modic changes and intervertebral disc degeneration

- Juhani H. Määttä, Alex MacGregor, Jaro Karppinen and Frances M. K. Williams

BMC Musculoskeletal

DOI: 10.1186/s12891-016-1198-1

Published: 26 August 2016

Background

Recent reported results have added to the weight of evidence supporting association between disc degeneration and Modic changes. Endplate or Modic changes are also associated with increased body mass index. The most recent study from Teichtahl et al. titled ‘Modic changes in the lumbar spine and their association with body composition, fat distribution and intervertebral disc height – a 3.0 T-MRI study’ showed associations of Modic changes with quantitatively measured reduced disc height and fat mass index. However, there were some facts, which we would like to address in this Correspondence to their article.

Discussion

The different components of intervertebral disc degeneration such as loss of disc height and disc signal intensity have already been shown associated with endplate changes – but not disc height if it is assessed using newer more precise methods of quantitation of disc height. A possible protective effect of different adiposity distribution in the body to Modic change development would be of interest if observed in a longitudinal study in the future.

Summary

Modic changes have been associated with different components of intervertebral disc degeneration such as loss of disc height and disc signal intensity previously. The influence of body fat distribution on endplate changes would be interesting to study longitudinally.

7. PELVIC ORGANS/WOMAN'S HEALTH

Conception

UofL study finds stress negatively affects chances of conception

University of Louisville Health News, 09/15/2016

What many have long suspected has been scientifically confirmed by a team of researchers from UofL – women's high stress reduces their probability of conception.

University of Louisville School of Public Health and Information Sciences epidemiologist Kira Taylor, PhD, and her UofL and Emory University colleagues, found that women who reported feeling more stressed during their ovulatory window were approximately 40-percent less likely to conceive during that month than during other, less stressful months. Similarly, women who generally reported feeling more stressed than other women were about 45-percent less likely to conceive. The results of the study were recently published in the journal *Annals of Epidemiology*. In the study, 400 women 40-years-old and younger who were sexually active recorded their daily stress levels measured on a scale from one to four (low to high). The diaries also contained information regarding menstruation, intercourse, contraception, alcohol, caffeine and smoking. Urine samples also were collected throughout the study, and women were followed until they became pregnant or until the study ended, for an average of eight menstrual cycles.

Researchers calculated mean stress levels during each phase of the menstrual cycle, with day 14 as the estimated time of ovulation. They found the negative effect of stress on fertility was only observed during the ovulatory window, and was true after adjustments for other factors such as age, body mass index, alcohol use and frequency of intercourse.

8. VISCERA

CD and increased risk of kidney problems

Celiac disease and the risk of kidney diseases: A systematic review and meta-analysis

Karn Wijarnpreecha Charat Thongprayoon Panadeekarn Panjawatanan Natanong Thamcharoen
Pavida Pachariyanon Kiran Nakkala Wisit Cheungpasitporn

DOI: <http://dx.doi.org/10.1016/j.dld.2016.08.115>

Background/objectives

Previous epidemiologic studies attempting to demonstrate the risk of kidney diseases among patients with celiac disease (CD) have yielded inconsistent results. This meta-analysis was conducted with the aims to summarize all available evidence.

Methods

A literature search was performed using MEDLINE and EMBASE from inception to May 2016. Studies that provided relative risks, odd ratios, or hazard ratios examining the risk of kidney diseases among patients with CD versus individuals without CD were included. Pooled risk ratios (RR) and 95% confidence interval (CI) were calculated using a random-effect, generic inverse variance method.

Results

Eight studies met our eligibility criteria and were included in our analysis. A pooled RR of overall kidney diseases in patients with CD was 2.01 (95% CI, 1.44–2.81, $I^2 = 76\%$). The pooled RR of end-stage renal disease in patients with CD was 2.57 (95% CI, 2.03–3.24). Subgroup analyses showed that significant risks were increased for diabetic nephropathy (pooled RR of 1.49, 95% CI, 1.09–2.02) and IgA nephropathy (pooled RR of 2.62, 95% CI, 1.27–5.42) in patients with CD.

Conclusions

Our study demonstrates a significantly increased risk of kidney diseases among patients with CD. These findings may influence clinical management and primary prevention of kidney diseases in patients with CD.

IBS changes

Neurogastroenterol Motil. 2016 Sep 12. doi: 10.1111/nmo.12928.

Supernatants of irritable bowel syndrome mucosal biopsies impair human colonic smooth muscle contractility.

Guarino MP¹, Barbara G², Cicenia A³, Altomare A¹, Barbaro MR², Cocca S¹, Scirocco A³, Cremon C², Emerenziani S¹, Stanghellini V², Cicala M¹, Severi C⁴.

BACKGROUND:

Changes in intestinal motility are likely to contribute to irritable bowel syndrome (IBS) pathophysiology. The aim of the study was to investigate the effects of IBS mucosal supernatants on human colonic muscle contractility.

METHODS:

Supernatants were obtained from biopsies of 18 IBS patients-nine with constipation (IBS-C) and nine with diarrhea-predominant IBS (IBS-D)-and nine asymptomatic subjects, used as controls. Colonic circular smooth muscle strips or isolated cells (SMC) were exposed to control or IBS supernatants. Spontaneous phasic contractions on strips and morphofunctional parameters on cells were evaluated in basal conditions and in response to acetylcholine (Ach). Incubation with IBS supernatants was also conducted in the presence of antagonists and inhibitors (namely histamine, protease and prostaglandin antagonists, nuclear factor-kappa B inhibitor, catalase, NADPH oxidase inhibitor, and the cAMP- and/or cGMP-cyclase inhibitors).

KEY RESULTS:

Exposure to IBS-C and IBS-D supernatants induced a significant reduction in basal tone and Ach-elicited contraction of muscle strips and a significant shortening and impairment of Ach contraction of SMCs. The NADPH oxidase inhibitor prevented the effect of supernatants, while the protease antagonist only IBS-C effect. No effect was observed with the other antagonists and inhibitors. Dilution of IBS-D supernatants partially restored the effects only on SMCs, whereas dilution of IBS-C supernatants significantly reverted the effects on muscle strips and Ach-elicited response on SMC.

CONCLUSIONS & INFERENCES:

Supernatants from mucosal biopsies of IBS patients reduce colonic contractility. The observed impairment was concentration dependent, likely occurring through intracellular oxidative stress damage, involving different neuromotor mechanisms depending on the IBS subtype.

Mast cells and CD**Mast cells are associated with the onset and progression of celiac disease**

Barbara Frossi, PhD Claudio Tripodo, MD Carla Guarnotta, PhD Antonio Carroccio, MD Marco De Carli, MD Stefano De Carli, MD Marco Marino, MD Antonino Calabrò, MD , Carlo Pucillo, MD

DOI: <http://dx.doi.org/10.1016/j.jaci.2016.08.011>

Abstract**Background**

Celiac disease (CD) is an immune-mediated disorder characterized by an accumulation of immune cells in the duodenal mucosa as a consequence of both adaptive and innate immune responses to undigested gliadin peptides. Mast cells (MCs) are innate immune cells that are a major source of co-stimulatory signals and inflammatory mediators in the intestinal mucosa. Although MCs have previously been associated with CD functional studies have never been performed.

Objective

We aimed at evaluating the role of MCs in the pathogenesis of CD.

Methods

Intestinal biopsies of patients with CD were scored according to the Marsh classification and characterized for leukocyte infiltration and MC distribution. Moreover, MC reactivity to gliadin and its peptides was characterized by *in vitro* assays.

Results

Infiltrating MCs were associated with the severity of mucosal damage, where their numbers were increased in patients with higher Marsh scores. MCs were found to directly respond to non-immunodominant gliadin fragments by releasing pro-inflammatory mediators.

Immunohistochemical characterization of infiltrating MCs and the effects of gliadin peptides on intestinal MCs indicated an increase in pro-inflammatory MC function in advanced stages of the disease. This was also associated with increased neutrophil accumulation, the prevalence of M1 macrophages and with severity of tissue damage.

Discussion

We provide a description of the progressive stages of CD in which MCs are the hallmark of the inflammatory process. The view of CD should thus be revised and the contribution of MCs in the onset and progression of CD should be reconsidered in developing new therapeutic approaches.

10 A. CERVICAL SPINE

Neck pain and psychological stress

Is there a relationship between psychological stress or anxiety and chronic nonspecific neck-arm pain in adults? A systematic review and meta-analysis

Journal of Psychosomatic Research, 09/15/2016

Ortego G, et al.

The aim of this work was to conduct a systematic review and meta-analysis to evaluate the research evidence linking stress or anxiety to chronic nonspecific neck-arm pain (NSNAP) in adults. The evidence highlight, there was a link between chronic NSNAP and psychological stress. According to the qualitative analysis there is a strong relationship between anxiety and chronic NSNAP.

Methods

- Twenty-eight studies involving 39,166 participants met the inclusion criteria.
- They obtained data from Pubmed, Scopus, PsycInfo, Web of Science, Physiotherapy Evidence Database (PEDro) and The Cochrane library database from their inception to July 2015.
- Two authors were independently reviewed the searches, extracted data, and completed methodological quality assessments.
- The methodological quality of the cohort and case-control studies was evaluated using the Newcastle-Ottawa scale, whilst the quality of the Randomized Controlled Trial (RCT) was evaluated using the PEDro scale.

Results

- Four studies, including 5 pair-wise comparisons, were included in the meta-analysis: Three were cohort studies and 1 was a cross-sectional study.
- The meta-analysis result demonstrated a relationship between chronic NSNAP and psychological stress.
- The estimate odds ratio for all studies combined was 2.33 (95% CI, 1.04 – 5.18; p = 0.039).
- A high heterogeneity of the findings appeared (Q = 28.94, I2 = 86% p = 0.00).

12 B. CERVICAL SURGERIES**Comparisons**

Pain Pract. 2016 Sep 9. doi: 10.1111/papr.12517.

Percutaneous Cervical Nucleoplasty Versus Pulsed Radio Frequency of the Dorsal Root Ganglion in Patients with Contained Cervical Disc Herniation; A Prospective, Randomized Controlled Trial.

Halim W¹, van der Weegen W², Lim T¹, Wullems JA¹, Vissers KC³.

BACKGROUND:

Cervical neck pain is often caused by cervical disc pathology and may cause severe symptoms and disability. Surgeons as well as patients are increasingly aware of postsurgery-related complications. This stimulated the clinical usage of minimally invasive treatments such as percutaneous nucleoplasty (PCN) and pulsed radio frequency (PRF). However, scientific evidence on both treatments is limited.

OBJECTIVE:

Our objective was to evaluate the efficacy of PCN compared to PRF in patients with contained cervical disc herniation.

METHODS:

A prospective randomized clinical trial was conducted including 34 patients with radicular pain due to a single contained cervical disc herniation who were treated with either PCN or PRF. Demographic data were collected and the Medical Outcomes Study 12-Item Short Form (SF-12) Health Survey, visual analog scale (VAS), and the Neck Disability Index (NDI) were completed 1, 2 and, 3 months after treatment. Treatment satisfaction and complications were recorded.

RESULTS:

In the PCN group (n=17, mean age 52.4 years, 10 female/7 male) patients were treated at C5-C6 (8 cases) or C6-C7 (9 cases). In the PRF group (n=17, mean age 49.5 years, 8 female/9 male) patients were treated at C3-C4 (1 case), C5-C6 (10 cases) or C6-C7 (6 cases). At 3 months, mean pain VAS improved significantly from baseline in the PCN group (mean improvement: 43.4 points) and in the PRF group (34.0 points). However, improvement in 1 group was not superior compared to the other group (P=0.48). No serious complications were reported.

CONCLUSION:

Within 3 months, both PCN and PRF show significant pain improvement in patients with contained cervical disc herniation, but none is superior to the other. Both treatment options appear to be effective and safe in regular clinical practice. This article is protected by copyright. All rights reserved.

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KEYWORDS: *Cervicobrachial neuralgia; evidence-based medicine; nerve pain; pain clinics; pulsed radiofrequency*

PMID: [27611826](#)

13. CRANIUM/TMJ**Swallowing**

J Oral Rehabil. 2016 Sep 9. doi: 10.1111/joor.12437.

Effects of wearing and removing dentures on oropharyngeal motility during swallowing.

Onodera S¹, Furuya J², Yamamoto H¹, Tamada Y¹, Kondo H¹.

BACKGROUND:

Wearing dentures and dysphagia are common in older individuals, however, it is still unknown how dentures affects oral and pharyngeal swallowing.

OBJECTIVES:

The purpose of this study was to reveal the effects of wearing and removing dentures on oropharyngeal movements during pharyngeal swallowing in the feeding sequence of solid food.

METHODS:

Participants were 25 edentulous volunteers (9 men, 16 women; mean age 76.2 years) who wore complete dentures. The test food was minced agar jelly containing barium sulfate. Subjects were instructed to feed and swallow the test food with or without dentures during observation using videofluorography. We quantitatively evaluated the range, distance, and duration of oropharyngeal movements during pharyngeal swallowing.

RESULTS:

When dentures were absent, the range of mandible and hyoid movements were significantly expanded in the anterosuperior direction, and the range of laryngeal movement was significantly expanded in the anterior direction. Additionally, the posterior pharyngeal wall contraction and upper esophageal sphincter opening significantly increased. In addition, the distances of the mandible, hyoid, and laryngeal movements, and the mandibular duration were significantly extended when dentures were absent. No significant differences were observed in the duration of movements of other organs between wearing and removing dentures.

CONCLUSIONS:

The hyoid bone, larynx, posterior pharyngeal wall, and upper esophageal sphincter do not change their duration of movements when dentures were removed, but rather, expand their range of movement. This might be spatial change of oropharyngeal movement to avoid temporal changes in pharyngeal swallowing when dentures were absent in edentulous older individuals. This article is protected by copyright. All rights reserved.

Tooth morphology

Am J Orthod Dentofacial Orthop. 2016 Sep;150(3):459-66. doi: 10.1016/j.ajodo.2016.04.017.

Three-dimensional evaluation of morphologic tooth symmetry in various malocclusions.

Dindaroğlu F¹, Duran GS², Aras I³.

INTRODUCTION:

The aim of this study was to evaluate the morphologic symmetry of the maxillary and mandibular teeth between the left and right quadrants in 3 dimensions using advanced engineering software.

METHODS:

The total sample comprised 120 dental casts of 60 patients with dental and skeletal Class I, Class II, and Class III malocclusions. They were divided into 3 groups of 40 dental casts (20 maxillary, 20 mandibular) belonging to 20 patients. The dental casts were digitized with an intraoral 3-dimensional scanner (TRIOS; 3Shape, Copenhagen, Denmark). Segmentation and superimposition procedures were carried out using Rapidform software (Inus Technology, Seoul, Korea). Teeth in the left and right quadrants (except for the second molars) in both jaws were superimposed using 3-point registration followed by surface-based registration; 3-Matic software (Materialise, Leuven, Belgium) was used for deviation analysis.

RESULTS:

The maximum mean deviations observed in the positive and negative directions were 0.14 ± 0.10 mm in the maxilla (for the Class I group) and 0.16 ± 0.09 mm for the Class III group. The differences of the maximum deviation amounts among the malocclusion groups were 0.47 ± 0.08 mm in negative direction in the maxillary teeth and 0.79 ± 0.17 mm in the mandibular arch.

CONCLUSIONS:

In the 3 malocclusion groups investigated, morphologic deviations were low and clinically insignificant. Symmetry of tooth morphology did not differ among Class I, Class II, and Class III malocclusions

Bruxism

J Oral Rehabil. 2016 Sep 9. doi: 10.1111/joor.12436.

Genetic polymorphisms in the serotonergic system are associated with circadian manifestations of Bruxism.

Oporto V GH^{1,2,3}, Bornhardt T², Iturriaga V², Salazar LA^{4,5}.

OBJECTIVES:

Bruxism (BRX) is a condition of great interest for researchers and clinicians in dental and medical areas. BRX has two circadian manifestations; it can occur during sleep (sleep bruxism, SB), or during wakefulness (awake bruxism, WB). However, it can be suffered together. Recent investigations suggest that central nervous system neurotransmitters and their genes could be involved in the genesis of BRX. Serotonin is responsible for the circadian rhythm, maintaining arousal, regulating stress response, muscle tone and breathing. Thus, serotonin could be associated with BRX pathogenesis. The aim of the present work was to evaluate the frequency of genetic polymorphisms in the genes HTR1A (rs6295), HTR2A (rs1923884, rs4941573, rs6313, rs2770304), HTR2C (rs17260565) and SLC6A4 (rs63749047) in subjects undergoing BRX treatment.

METHODS:

Patients included were classified according to their diagnosis in awake bruxism (61 patients), sleep bruxism (26 patients) and both (43 patients). The control group included 59 healthy patients with no signs of BRX.

RESULTS:

Data showed significant differences in allelic frequencies for the HTR2A rs2770304 polymorphism, where the C allele was associated with increased risk of SB (odds ratio = 2.13, 95% confidence interval: 1.08 - 4.21, p=0.03).

CONCLUSION:

Our results suggest that polymorphisms in serotonergic pathways are involved in sleep bruxism. Further research is needed to clarify and increase the current understanding of BRX physiopathology. This article is protected by copyright. All rights reserved.

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KEYWORDS:

Bruxism; Facial Pain; Genetic Polymorphism; Molecular Biology; Serotonin

PMID: [27611726](#)

20 B. LABRUM**Posterior instability**

Arthroscopy. 2016 Sep 3. pii: S0749-8063(16)30397-8. doi: 10.1016/j.arthro.2016.06.023.

Comparison of Glenoid Version and Posterior Humeral Subluxation in Patients With and Without Posterior Shoulder Instability.

Parada SA¹, Eichinger JK², Dumont GD³, Burton LE⁴, Coats-Thomas MS⁴, Daniels SD⁵, Sinz NJ⁵, Provencher MT⁴, Higgins LD⁵, Warner JJ⁴.

PURPOSE:

To evaluate glenoid version and humeral subluxation on preoperative multiplanar imaging of patients who underwent surgery for posterior glenohumeral instability compared with a matched group of patients who had shoulder surgery for other pathology.

METHODS:

All patients over a 2-year period who underwent surgery for posterior instability had preoperative magnetic resonance (MR) imaging or MR arthrogram reviewed. Patients undergoing shoulder surgery for reasons other than instability were identified as a control group and matched by sex, laterality, and age. Measurement of glenoid version and percentage of humeral subluxation was performed by 2 reviewers after completing a tutorial. Reviewers were blinded to diagnosis and to whether or not the patients were in the experimental or control group.

RESULTS:

There were 41 patients in each group. The average glenoid version in the control group was 5.6° of retroversion (standard deviation [SD] 3.0), and the average humeral subluxation was 54% (SD 5.1%). In the experimental group, the average glenoid version was 8.1° of retroversion (SD 5.0). The average humeral subluxation in the experimental group was 56% (SD 6.8%). Student t test revealed a statistically significant difference in glenoid version ($P = .009$) but not humeral subluxation ($P = .25$). Intra- and inter-rater reliability was measured by the intraclass correlation coefficient and found to have an excellent Fleiss rating with regard to both measurements.

CONCLUSIONS:

Glenoid retroversion is significantly increased in patients with symptomatic posterior labral tears compared with a control group. However, there was no statistically significant difference between the groups with regard to posterior humeral subluxation and, therefore, is not a reliable indicator of the presence or absence of symptomatic posterior shoulder instability.

32 A. KNEE/ACL**Age and ACL**

Am J Sports Med. 2016 Sep;44(9):2399-405. doi: 10.1177/0363546516648318. Epub 2016 Jun 7.

Does Age Influence the Risk of Incident Knee Osteoarthritis After a Traumatic Anterior Cruciate Ligament Injury?

Johnson VL¹, Roe JP², Salmon LJ², Pinczewski LA², Hunter DJ³.

BACKGROUND:

The development of radiographic knee osteoarthritis (OA) after an anterior cruciate ligament (ACL) rupture has long been studied and proven in the adolescent population. However, similar exhaustive investigations have not been conducted in mature-aged athletes or in older populations.

PURPOSE:

To identify whether an older adult population had an increased risk of incident radiographic knee OA after a traumatic knee injury compared with a young adult population.

STUDY DESIGN:

Cohort study; Level of evidence, 3.

METHODS:

Patients with ACL ruptures who underwent primary reconstruction were enrolled in a prospective, longitudinal single-center study over 15 years. The adult cohort was defined as participants aged ≥ 35 years who had a knee injury resulting in an ACL tear, the adolescent-young cohort suffered similar knee injuries and were aged ≤ 25 years, and a third cohort of participants aged 26 to 34 years who suffered a knee injury was included to identify the existence of any age-related dose-response relationship for the onset of radiographic knee OA. A Kaplan-Meier survival analysis was employed to determine the occurrence of incident radiographic OA across the study populations at 2, 5, 10, and 15 years after reconstruction. Significance at each time point was analyzed using chi-square tests.

RESULTS:

A total of 215 patients, including 112 adolescents (mean age, 20.4 years; 50.9% female), 71 patients aged 26 to 34 years (mean age, 29.2 years; 42.3% female), and 32 adults (mean age, 40.2 years; 59.4% female), were assessed for International Knee Documentation Committee (IKDC) grading on knee radiographs. It was found that 53.0% and 77.8% of adults at a respective 10 and 15 years after reconstruction had an IKDC grade of B or greater compared with 17.7% and 61.6% of the adolescent-young cohort. Chi-square testing found that adults developed OA earlier than adolescents at 5 and 10 years after reconstruction ($P = .017$ and $P < .0001$, respectively). However, survival analysis did not demonstrate that adults were more likely to develop radiographic knee OA at 15 years after reconstruction compared with the adolescent-young cohort ($P = .4$).

CONCLUSION:

The age at which an ACL injury is sustained does not appear to influence the rate of incident radiographic knee OA, although mature-aged athletes are likely to arrive at the OA endpoint sooner.

Recovery

Clin J Sport Med. 2016 Sep;26(5):411-6. doi: 10.1097/JSM.0000000000000279.

Lower Extremity Movement Differences Persist After Anterior Cruciate Ligament Reconstruction and When Returning to Sports.

Butler RJ¹, Dai B, Huffman N, Garrett WE, Queen RM.

OBJECTIVE:

To examine how landing mechanics change in patients after anterior cruciate ligament reconstruction (ACL-R) between 6 months and 12 months after surgery.

DESIGN:

Case-series.

SETTING:

Laboratory.

PARTICIPANTS:

Fifteen adolescent patients after ACL-R participated.

INTERVENTIONS:

Lower extremity three-dimensional motion analysis was conducted during a bilateral stop jump task in patients at 6 and 12 months after ACL-R. Joint kinematic and kinetic data, in addition to ground reaction forces, were collected at each time point.

MAIN OUTCOME MEASURES:

During the stop jump landing, the peak joint moments and the initial and peak joint motion at the ankle, knee, and hip were examined. The peak vertical ground reaction force was also examined.

RESULTS:

Interactions were observed for both the peak knee ($P = 0.03$) and hip extension moment ($P = 0.07$). However, only the hip extension moment was symmetrical level at 12 months. Statistically significant ($P < 0.05$) side-to-side differences existed for the ankle angle at initial contact, peak plantarflexion moment, peak hip flexion angle, and peak impact vertical ground reaction force independent of time.

CONCLUSIONS:

The findings of this study suggest that sagittal plane moments at the knee and hip demonstrate an increase in symmetry between 6 months and 1 year after ACL-R surgery, however, symmetry of the knee extension moment is not established by 12 months after surgery. The lack of change in the variables across time was unexpected. As a result, it is inappropriate to expect a change in landing mechanics solely as a result of time alone after discharge from rehabilitation.

34. PATELLA**Factors in females**

Clin J Pain. 2016 Oct;32(10):915-9. doi: 10.1097/AJP.0000000000000331.

Somatosensory and Biomechanical Abnormalities in Females With Patellofemoral Pain.

Noehren B¹, Shuping L, Jones A, Akers DA, Bush HM, Sluka KA.

OBJECTIVES:

Chronic patellofemoral pain (PFP) is a common orthopedic condition for which little is understood of the alterations in pain processing such as hyperalgesia, hypoesthesia, and the relationship of altered knee mechanics to hyperalgesia. We assessed pain, pressure pain thresholds (PPT), detection to light touch, and the relationship of pain and PPTs to knee abduction angle during a stair step down task between females with and without PFP.

MATERIALS AND METHODS:

Twenty females diagnosed with PFP and 20 age-matched pain-free females participated in this study. Individuals underwent an instrumented assessment of knee mechanics during a stair step down task, PPT and detection of light touch over the center of the patella and lateral retinaculum, and PPT outside painful area over the right elbow.

RESULTS:

The PFP group had significantly lower PPT values at the patella ($P=0.02$), lateral retinaculum ($P=0.001$), and at the elbow ($P=0.03$). There was an elevated threshold to detect light touch over the center of their patella ($P=0.04$). A significant relationship between both pain ($r=-0.49$, $P=0.03$) and PPT values ($r=-0.65$, $P=0.004$) to the frontal plane knee angle existed in the PFP group which was not present in the control group ($r=-0.17$, $P=0.49$) or in the elbow ($r=-0.009$, $P=0.972$).

DISCUSSION:

These results suggest that PFP is characterized by an increase in both localized and centralized pain sensitivity that is related to movement mechanics. Thus, PFP has both biomechanical, nociceptive components as well as inferred aspects of altered central sensitization

37. OSTEOARTHRITIS/KNEE**Inflammatory factors**

Arthritis Res Ther. 2016 Sep 15;18(1):207.

Synovial fluid adipokines are associated with clinical severity in knee osteoarthritis: a cross-sectional study in female patients with joint effusion.

Calvet J^{1,2}, Orellana C³, Gratacós J^{3,4}, Berenguer-Llargo A⁵, Caixàs A⁶, Chillarón JJ^{4,7}, Pedro-Botet J^{4,7}, García-Manrique M³, Navarro N³, Larrosa M³.

BACKGROUND:

Adipokines are related to knee osteoarthritis, but their exact role is not well known. The aim of this study was to evaluate the association between adipokines in synovial fluid and clinical severity in patients with knee osteoarthritis with joint effusion.

METHODS:

Cross-sectional study with systematic inclusion of female patients with symptomatic primary knee osteoarthritis with ultrasound-confirmed joint effusion. Age, physical exercise, knee osteoarthritis symptoms duration, classical cardiovascular risk factors and different anthropometric measurements were collected. Metabolic syndrome was defined in accordance to National Cholesterol Education Program-Adult Treatment Panel III. Radiographic severity was evaluated according to Kellgren-Lawrence scale and Lequesne index was used to assess clinical severity. Seven adipokines (leptin, adiponectin, resistin, visfatin, osteopontin, omentin and chemerin) and three inflammatory markers (tumor necrosis factor α , interleukin 6 and high sensitivity C-reactive protein) were measured by enzyme-linked immunosorbent assay in synovial fluid.

RESULTS:

Kellgren-Lawrence grade, physical exercise, all anthropometric measurements (especially waist circumference), tumor necrosis factor α , and high levels of leptin, resistin, and osteopontin were related to knee osteoarthritis severity. After adjustment for clinical confounders (age, symptom duration, and radiology), anthropometric measurements, inflammatory markers, and all evaluated adipokines, there were independent associations with clinical severity for resistin (directly associated) and visfatin (inversely associated). No other adipokines or inflammatory markers were independently associated with Lequesne index. The association of radiological parameters, physical exercise, and waist circumference with Lequesne index remained after adjustment.

CONCLUSIONS:

Resistin was directly associated, and visfatin was inversely associated, with clinical severity in female patients with knee osteoarthritis with joint effusion. These associations were more important after adjustment for confounders, especially when all adipokines were evaluated

Knee OA prevention**Do early life factors affect the development of knee osteoarthritis in later life: A narrative review**

Arthritis Research & Therapy, 09/15/2016

Anton B, et al.

This review plan to describe the association between childhood or early adulthood risk factors and knee pain, structural imaging markers, and development of knee OA. This review further suggests that childhood malalignment, socioeconomic status, and physical abuse are associated with OA in later life. As per the evidence, early life intervention may prevent OA in later life.

- Researchers performed a narrative overview of the literature synthesising the findings of literature retrieved from searches of computerised databases and manual searches.
- As per the findings, only a few studies have explored the long-term effect of childhood or early adulthood risk factors on the markers of joint health that predispose people to OA or joint symptoms.
- They observed an independent association of high body mass index (BMI) and/or overweight status from childhood to adulthood with knee pain and OA in later life.
- Further to this, the findings regarding the association between strenuous physical activity and knee structures in young adults are still conflicting.
- They recorded a favourable effect of moderate physical activity and fitness on knee structures.
- They found independent beneficial effects on knee structures including knee cartilage in children and young adults by childhood physical activity and performance measures.
- Findings suggested that anterior knee pain syndrome in adolescence could lead to the development of patellofemoral knee OA in the late 40s.

Changes in knee OA

Clin J Pain. 2016 Oct;32(10):841-8. doi: 10.1097/AJP.0000000000000334.

Sensitization and Serological Biomarkers in Knee Osteoarthritis Patients With Different Degrees of Synovitis.

Petersen KK¹, Siebuhr AS, Graven-Nielsen T, Simonsen O, Boesen M, Gudbergesen H, Karsdal M, Bay-Jensen AC, Arendt-Nielsen L.

OBJECTIVE:

Synovitis is a frequent condition in knee osteoarthritis (KOA) and has been associated with pain. This study investigated the links between the pressure hyperalgesia, the clinical pain, the degree of the synovitis, inflammatory biomarkers, and tissue-specific biomarkers in KOA patients.

MATERIALS AND METHODS:

Fifty-eight KOA patients and 33 pain-free controls participated in this study. The patients were magnetic resonance imaging scanned, and the Boston-Leeds OA Knee Score (BLOKS, 0 to 3) was used to assess the degree of synovitis. The maximal knee pain intensity over the last 24 hours was scored on a visual analog scale (VAS). The pressure pain thresholds (PPTs) were assessed over the KOA-affected knee. Serological biomarkers were measured in fasting serum: high-sensitive C-reactive protein, matrix metalloproteinase-mediated degradation of CRP, and matrix metalloproteinase-mediated collagen type I, II, and III degradation (C1M [connective tissue], C2M [cartilage], C3M [synovial membrane]).

RESULTS:

Compared with controls, the KOA patients showed increased levels of C1M ($P<0.02$), C2M ($P<0.001$), and high-sensitive C-reactive protein ($P<0.02$), decreased level of C3M ($P<0.03$), and reduced PPTs ($P<0.03$). Patients with no (BLOKS 0) and moderate to severe (BLOKS 2&3) synovitis had significantly lower PPTs compared with mild synovitis (BLOKS 1). Significantly negative correlations were found between VAS and PPTs. No correlations were found between BLOKS and the VAS, PPT, or biomarkers.

DISCUSSION:

Patients without and with moderate to severe synovitis demonstrated local pressure hyperalgesia and increased degrees of: (1) systemic inflammation, (2) connective tissue degradation, (3) cartilage degradation, and (4) decreased synovial membrane degradation as compared with controls.

PMID: [26633689](#)

40. ANKLE SPRAINS AND INSTABILITY

Sprain prevention

Prevention programs significantly reduce ankle injuries in soccer athletes

American Academy of Orthopaedic Surgeons News, 09/13/2016

Prevention programs are effective at reducing the risk of ankle injuries by 40 percent in soccer players, according to a new study appeared in the Journal of Bone and Joint Surgery (JBJS). Injuries to the lower extremities are the most common in soccer. According to the Consumer Product Safety Commission (CPSC), more than 227,700 people were treated for soccer-related injuries in 2015, including more than 36,300 with ankle injuries. These injuries can be traumatic, often sidelining players from the game for weeks or months. Several prevention programs have been developed to address this concern. In a new analysis, researchers reviewed the data from 10 randomized controlled studies on ankle injury prevention programs, involving 4,121 female and male soccer players. “This is the first study of its kind on ankle injuries in soccer athletes to strongly support injury prevention programs to reduce ankle injuries,” said lead study author and orthopaedic surgeon Nathan Grimm, MD.

“In our analysis, we were able to review the results from multiple studies, and make conclusions we could not make from any one study by itself.” The studies included neuromuscular, proprioceptive (balance), strengthening, and stretching exercises to prevent ankle injuries. They did not include bracing, taping or other external supports.

50 A. MOTOR CONTROL**MC and LBP**

J Manipulative Physiol Ther. 2016 Sep 3. pii: S0161-4754(16)30037-9. doi: 10.1016/j.jmpt.2016.07.006.

Effects of Motor Control Exercise Vs Muscle Stretching Exercise on Reducing Compensatory Lumbopelvic Motions and Low Back Pain: A Randomized Trial.

Park KN¹, Kwon OY², Yi CH³, Cynn HS³, Weon JH⁴, Kim TH⁵, Choi HS⁶.

OBJECTIVES:

The purpose of this study was to investigate the effectiveness of a 6-week motor control exercise (MCE) vs stretching exercise (SE) on reducing compensatory pelvic motion during active prone knee flexion (APKF) and intensity of low back pain.

METHODS:

Thirty-six people in the lumbar-rotation-extension subgroup were randomly assigned equally into 2 exercise groups (18 people in each an MCE or SE group). A 3-dimensional motion-analysis system was used to measure the range and onset time of pelvic motion and knee flexion during APKF. Surface electromyography was used to measure the muscle activity and onset time of the erector spinae and the hamstrings during APKF. The level of subjective low back pain was measured using a visual analog scale.

RESULTS:

The MCE group had more significant decreases in and delay of anterior pelvic tilt, pelvic rotation, and erector spinae muscle activity during APKF, as well as reduced intensity of low back pain compared with the SE group ($P < .05$).

CONCLUSIONS:

For rehabilitation in patients in the lumbar-rotation-extension subgroup, MCE was more effective than SE in reducing compensatory pelvic motion and muscle activity during APKF and minimizing low back pain.

55. SCOLIOSIS

Growth and curve progression

Spinal growth velocity versus height velocity in predicting curve progression in peri-pubertal girls with idiopathic scoliosis

- Benlong Shi[†], Saihu Mao[†], Zhen Liu, Xu Sun, Zezhang Zhu, Feng Zhu, Jack C. Y. Cheng and Yong Qiu[†]

BMC Musculoskeletal

DOI: 10.1186/s12891-016-1221-6

Published: 26 August 2016

Background

Height velocity (HV) is traditionally used to monitor the residual growth potential in idiopathic scoliosis (IS). The temporal timing of rapid increase in standing height often does not match exactly that of the increase in spine height. The purposes of this study were to analyze the correlation between change of angle velocity (AV) vs the changes of spinal growth velocity (SGV) and HV, and the associated predictive value on curve progression in IS.

Methods

Pre-pubertal IS girls with single curve receiving standardized bracing treatment followed longitudinally with documented curve progression $>5^\circ$ were retrospectively reviewed. The age, standing height, Cobb angle (main curve), spinal length, Risser sign, HV, SGV and AV at each visit were measured and calculated. The visit with the highest AV value of each patient was selected for the final analysis and correlated with the corresponding peak height velocity (PHV) and peak spinal growth velocity (PSGV).

Results

Sixty-two IS girls were reviewed. Chi-square test revealed PSGV contributed more to the highest AV than PHV ($P = 0.001$). Pearson correlation analysis demonstrated that AV was correlated with SGV ($r = 0.454$, $P < 0.001$) and HV ($r = 0.280$, $P = 0.027$). Multiple linear regression analysis showed that high AV was better predicted by higher SGV ($B = 0.321$, $P = 0.007$) rather than higher HV ($B = 0.259$, $P = 0.362$) ($R = 0.467$).

Conclusions

Variations of spinal growth velocity exerted more direct influence over changes in angle velocity as compared with height velocity. High spinal growth velocity predisposed to more rapid curve progression in patients with idiopathic scoliosis.

Adolescents

Adolescent idiopathic scoliosis and back pain

- Federico Balagu Ferran Pellis

Scoliosis and Spinal Disorders 2016 **11**:27

DOI: 10.1186/s13013-016-0086-7

Published: 9 September 2016

Abstract

This broad narrative review addresses the relationship between adolescent idiopathic scoliosis (AIS) and back pain. AIS can be responsible for low back pain, particularly major cases. However, a linear relationship between back pain and the magnitude of the deformity cannot be expected for any individual patient. A large number of juvenile patients can remain pain-free. The long-term prognosis is rather benign for many cases and thus a tailored approach to the individual patient seems mandatory. The level of evidence available does not allow stringent recommendations for any of the disorders included in this review.

Keywords adolescent idiopathic scoliosis Back pain Conservative management Surgical treatment Natural history

57. GAIT**Plantar pressures in diabetics**

BMC Endocr Disord. 2016 Sep 15;16(1):51.

Plantar pressures are higher in cases with diabetic foot ulcers compared to controls despite a longer stance phase duration.

Fernando ME^{1,2,3}, Crowther RG⁴, Lazzarini PA^{5,6}, Sangla KS⁷, Wearing S^{6,8}, Buttner P^{9,10}, Gollidge J^{11,12}.

BACKGROUND:

Current international guidelines advocate achieving at least a 30 % reduction in maximum plantar pressure to reduce the risk of foot ulcers in people with diabetes. However, whether plantar pressures differ in cases with foot ulcers to controls without ulcers is not clear. The aim of this study was to assess if plantar pressures were higher in patients with active plantar diabetic foot ulcers (cases) compared to patients with diabetes without a foot ulcer history (diabetes controls) and people without diabetes or a foot ulcer history (healthy controls).

METHODS:

Twenty-one cases with diabetic foot ulcers, 69 diabetes controls and 56 healthy controls were recruited for this case-control study. Plantar pressures at ten sites on both feet and stance phase duration were measured using a pre-established protocol. Primary outcomes were mean peak plantar pressure, pressure-time integral and stance phase duration. Non-parametric analyses were used with Holm's correction to correct for multiple testing. Binary logistic regression models were used to adjust outcomes for age, sex and body mass index. Median differences with 95 % confidence intervals and Cohen's d values (standardised mean difference) were reported for all significant outcomes.

RESULTS:

The majority of ulcers were located on the plantar surface of the hallux and toes. When adjusted for age, sex and body mass index, the mean peak plantar pressure and pressure-time integral of toes and the mid-foot were significantly higher in cases compared to diabetes and healthy controls ($p < 0.05$). The stance phase duration was also significantly higher in cases compared to both control groups ($p < 0.05$). The main limitations of the study were the small number of cases studied and the inability to adjust analyses for multiple factors.

CONCLUSIONS:

This study shows that plantar pressures are higher in cases with active diabetic foot ulcers despite having a longer stance phase duration which would be expected to lower plantar pressure. Whether plantar pressure changes can predict ulcer healing should be the focus of future research. These results highlight the importance of offloading feet during active ulceration in addition to before ulceration.

59. PAIN

Sleep variation between the sexes

Could quality of sleep have to do with sex differences?

McGill University News, 09/13/2016

You may have noticed that women are more prone to sleep disturbances than men. They are, for instance, up to twice as likely to suffer from insomnia than men. Could there be a link between the body clock that regulates sleep and being a female or a male? Yes, according to an original study conducted by Dr. Diane B. Boivin of McGill University's Department of Psychiatry and the Douglas Mental Health University Institute. By controlling for the menstrual cycle and hormonal contraceptive use, Dr. Boivin shows, in the Proceedings of the National Academy of Sciences (PNAS), that the body clock affects sleep and alertness differently in men and women.

The results of this study hint that women could be less biologically suited for night work. Further research will be necessary to explore this matter and develop interventions suited to men's and women's health.

Psychosocial components

J Pain. 2016 Sep;17(9 Suppl):T21-49. doi: 10.1016/j.jpain.2016.02.006.

Assessment of Psychosocial and Functional Impact of Chronic Pain.

Turk DC¹, Fillingim RB², Ohrbach R³, Patel KV⁴.

The psychosocial and functional consequences of chronic pain disorders have been well documented as having significant effects on the experience of pain, presentation to health care providers, responsiveness to and participation in treatment, disability, and health-related quality of life. Thus, psychosocial and functional consequences have been incorporated as 1 of the 5 dimensions within the integrated Analgesic, Anesthetic, and Addiction Clinical Trial Translations, Innovations, Opportunities, and Networks (ACTTION)-American Pain Society (APS) Pain Taxonomy (AAPT): 1) core diagnostic criteria; 2) common features; 3) common medical comorbidities; 4) neurobiological, psychosocial, and functional consequences; and 5) putative neurobiological and psychosocial mechanisms, risk factors, and protective factors. In this article we review the rationale for a biopsychosocial perspective, on the basis of current evidence, and describe a set of key psychosocial and behavioral factors (eg, mood/affect, coping resources, expectations, sleep quality, physical function, and pain-related interference with daily activities) that are important consequences of persistent pain and that should be considered when classifying patients within the comprehensive AAPT chronic pain structure. We include an overview of measures and procedures that have been developed to assess this set of factors and that can be used as part of the comprehensive assessment and classification of pain and to address specific research questions.

PERSPECTIVE:

Psychosocial and functional consequences are important considerations in the classification of individuals with chronic pain. A set of key psychosocial and behavioral factors (eg, mood/affect, coping resources, expectations, sleep quality, physical function, and pain-related interference with daily activities) that should be considered when classifying patients within the comprehensive classification of chronic pain disorders developed by the AAPT are outlined and examples of assessment methods for each are described.

Sensitivity

J Pain. 2016 Aug 30. pii: S1526-5900(16)30204-8. doi: 10.1016/j.jpain.2016.08.009.

Somatic Awareness and Tender Points in a Community Sample.

Schrepf A¹, Harper DE², Williams DA², Hassett AL², Harte SE².

Somatic awareness (SA) refers to heightened sensitivity to a variety of physical sensations and symptoms. Few attempts have been made to dissociate the relationship of SA and affective symptoms with pain outcomes. We used a validated measure of mood and anxiety symptoms that includes questions related to SA to predict the number of tender points found on physical examination in a large cross-sectional community sample (the Midlife in the United States [MIDUS] Biomarker study). General distress, positive affect, and SA, which were all significantly associated with tender point number in bivariate analyses, were used as predictors of the number of tender points in a multivariate negative binomial regression model. In this model a greater number of tender points was associated with higher levels of SA ($p = .02$) but not general distress ($p = .13$) or positive affect ($p = .50$). Follow-up mediation analyses indicated that the relationship between general distress and tender points was partially mediated by levels of SA. Our primary finding is that SA is strongly related to the number of tender points in a community sample. Mechanisms linking SA to the spatial distribution of pain sensitivity should be investigated further.

PERSPECTIVE:

This article presents an analysis of three overlapping psychological constructs and their relationship to widespread pain sensitivity on palpation. The findings suggest that somatic awareness is most strongly related to the spatial distribution of pain sensitivity and that further assessing it may improve our understanding of the relationship between psychological factors and pain

62 A. NUTRITION/VITAMINS**Vit. D and MS health**

Osteoporosis International
pp 1–11

Cut-points for associations between vitamin D status and multiple musculoskeletal outcomes in middle-aged women

- F. Wu, K. Wills, L. L. Laslett, B. Oldenburg, M. J. Seibel, G. Jones, T. Winzenberg

DOI: 10.1007/s00198-016-3754-9

Summary

This was the first study examining optimal vitamin D status for musculoskeletal health in middle-aged women. A 25-hydroxyvitamin D level of at least 29 to 33 nmol/L appears required for optimal musculoskeletal health, but the current cut-off of 50 nmol/L may be warranted.

Introduction This study aimed to determine whether cut-points exist for associations between serum 25-hydroxyvitamin D (25OHD) and musculoskeletal health outcomes in middle-aged women, below which greater 25OHD levels are associated with musculoskeletal health benefits and above which no such associations exist.

Methods

This is a cross-sectional study of 344 women aged 36–57 years. Cut-points for associations of serum 25OHD with lumbar spine (LS) and femoral neck (FN) bone mineral density (BMD), lower limb muscle strength (LMS), timed up and go test (TUG), functional reach test (FRT), lateral reach test (LRT), and step test (ST) were explored using locally weighted regression smoothing and nonlinear least-squares estimation, and associations above and below the identified cut-points were estimated using segmented regression.

Results

The prevalence of low 25OHD was 28 % (<50 nmol/L). Significant cut-points (nmol/L) were identified for FN BMD 31 (95 % confidence interval (CI): 18, 43), LS BMD 31 (17, 45), TUG 30 (24, 36), ST 33 (24, 31), FRT 31 (18, 43), and LMS 29 (8, 49) but not LRT (42 (–8, 93). Below these cut-points, there were beneficial associations between higher 25OHD level and each outcome, while above the cut-points, there were no beneficial associations.

Conclusions

In middle-aged women, there are thresholds for associations between serum 25OHD concentrations and bone density and most balance measures, suggesting that 25OHD levels of at least 29 to 33 nmol/L are required for optimal musculoskeletal health in this population. The

ABSTRACTS

current cut-off of 50 nmol/L may be higher than needed for some outcomes but appears warranted overall.