

ABSTRACTS

Table of Contents	
LUMBAR SPINE	2
PELVIC GIRDLE	3
PELVIC ORGANS	5
VISCERA	Error! Bookmark not defined.
THORACIC SPINE	Error! Bookmark not defined.
CERVICAL SPINE	Error! Bookmark not defined.
CRANIUM/TMJ	20
HEADACHES	24
CONCUSSIONS	Error! Bookmark not defined.
SHOULDER GIRDLE	26
GLENOHUMERAL/SHOULDER	Error! Bookmark not defined.
ELBOW	27
WRIST AND HAND	Error! Bookmark not defined.
HIP	Error! Bookmark not defined.
KNEE	Error! Bookmark not defined.
FOOT AND ANKLE	39
MANUAL THERAPY/STRETCHING/MUSCLES STM	42
CFS/BET	Error! Bookmark not defined.
ATHLETICS	51
RUNNING GAIT	54
PAIN	55
COMPLEX REGIONAL PAIN	Error! Bookmark not defined.
FIBROMYALGIA	62
NUTRITION/VITAMINS/MEDICATION/TOPICALS	63
NEUROLOGICAL CONDITIONS	Error! Bookmark not defined.

1. LUMBAR SPINE

Spondylo prevalence

J Orthop Sci. 2015 Aug 21.

Radiographic natural course of lumbar degenerative spondylolisthesis and its risk factors related to the progression and onset in a 15-year community-based cohort study: the Miyama study.

Enyo Y¹, Yoshimura N, Yamada H, Hashizume H, Yoshida M.

Author information

Abstract

BACKGROUND:

The natural history and risk factors for lumbar degenerative spondylolisthesis (DS) remain unclear. Because it is important for physicians to take these factors into account to ensure accurate decisions regarding surgical methods, this study aimed to elucidate the natural course and risk factors for the progression of DS.

METHODS:

This is a prospective observation and case control study of 15-year follow-up in a rural mountainous cohort in Wakayama, Japan. In 1990 and 2005, a total of 200 participants (baseline age, range 40-75) were subjected to anteroposterior and lateral radiographs of the lumbar spine, which were acquired with patients in a standing position. The prevalence of DS (slip ≥ 3 mm) at baseline and the incidence of DS at 15-year follow-up were recorded. Risk factors at baseline for progression of L4 slip (≥ 3 mm) over the 15-year period were determined by multiple logistic regression analysis.

RESULTS:

The overall prevalence of DS in 1990 was 10 % (20/200), and by spinal level was as follows: one case at L3, 14 cases at L4, and five at L5. In 2005, the overall prevalence of DS had risen to 22.5 % (45/200). Thus the incidence of de novo DS during the 15-year period was estimated at 14 % (25/180). Progression of the L4 slip (≥ 3 mm), regardless of baseline condition, was observed in 23 participants after 15 years. In multiple regression analysis, significant risk factors for L4 slip progression were identified as age less than 60 years, female sex, lumbar axis sacral distance, facet sagittalization, and existence of slip at baseline.

CONCLUSIONS:

We successfully elucidated the risk factors for the progression of DS in a general population. Moreover, the results of this study identified preventive factors as well as risk factors for slip progression. This study provides useful information for physicians treating DS.

PMID:26293800

2. LBP

Pain relief is most important

Patients prefer relief from lower back pain over improved mobility

University of Rochester Medical Center, 09/11/2015

A new study out in the journal *Neurology* examines the question of quality of life for individuals with a common form of lower back pain called lumbar spinal stenosis. The findings show that, when asked to choose between treatments that reduced pain or would help them stand or walk, patients overwhelmingly chose pain relief. There has long been a debate in the medical community over striking the right balance between pain relief and physical function,” said John Markman, M.D., director of the Translational Pain Research Program in the University of Rochester Department of Neurosurgery and lead author of the study. “While physicians have leaned toward the need to increase mobility, this study shows that patients have a clear preference for pain relief.”

Impact of LBP

Novel diagnostic and prognostic methods for disc degeneration and low back pain

The Spine Journal, 09/09/2015 Samartzis D, et al.

Low back pain (LBP) is the world's leading debilitating condition. It is estimated that 80% of the general population in the United States will develop LBP at one point in time. Such pain can lead to diminished daily function and quality of life and work disability. As data indicate, LBP is clearly related with detrimental socioeconomic and health-care consequences that motivate efforts to identify LBP risk factors to develop improved prevention and treatment strategies.

3. DISC

Rest and disc degeneration

BMC Musculoskelet Disord. 2015 Aug 24;16(1):221. doi: 10.1186/s12891-015-0686-z.

Effects of resting modes on human lumbar spines with different levels of degenerated intervertebral discs: a finite element investigation.

Fan R¹, Gong H², Qiu S³, Zhang X⁴, Fang J⁵, Zhu D⁶.
Author information

Abstract

BACKGROUND:

The negative effect of long-term working load on lumbar is widely known. However, insertion of different resting modes on long-term working load, and its effects on the lumbar spine is rarely studied. The purpose of this study was to investigate the biomechanical responses of lumbar spine with different levels of degenerated intervertebral discs under different working-resting modes.

METHODS:

Four poroelastic finite element models of lumbar spinal segments L2-L3 with different grades of disc degeneration were developed. Four different loading conditions represented four different resting frequencies, namely, no rest, one-time long rest, three-time moderate rests, and five-time short rests, on the condition that the total resting time was the same except in the no rest mode. Loading amplitudes of diurnal activities included 100 N, 300 N, and 500 N.

RESULTS:

With increasing resting frequency, the axial effective stress and fluid loss decreased, whereas the pore pressure and radial displacement increased. Under different resting frequencies, the changing rate of each biomechanical parameter was different.

CONCLUSIONS:

Under a situation of fixed total resting time, high resting frequency was advisable. If sufficient resting frequency was unavailable for healthy people as well as patients with mildly and moderately degenerated intervertebral discs, they could similarly benefit from relatively less resting frequencies. However, one-time rest will not be useful in cases where intervertebral discs were seriously degenerated. Reasonable working-resting modes for different degrees of disc degeneration, which could assist patients achieve a better restoration, were provided in this study.

PMID:26300114

5. SURGERY

Impact of fusion

The long-term outcome of lumbar fusion in the Swedish Lumbar Spine Study

Rune Hedlund, Prof. MD, PhD. Christer Johansson, Mr. MSc Olle Hägg, Dr. MD, PhD. Peter Fritzell, Dr. MD, PhD. Tycho Tullberg, Dr. MD, PhD.

DOI: <http://dx.doi.org/10.1016/j.spinee.2015.08.065>

Background

Context. Current literature suggest that fusion of the lumbar spine in chronic low back pain (CLBP) in the long-term does not result in an outcome clearly better than structured conservative treatment modes.

Purpose

To assess the long-term outcome of lumbar fusion in CLBP, and also to assess methodological problems in long-term RCTs.

Study Design

A prospective randomized study.

Patient sample

294 patients, 144 women and 150 men with CLBP of at least 2 years duration were randomized to lumbar fusion or non-specific physiotherapy. The mean follow-up time was 12.8 years (range 9-22). The follow up rate was 85%; exclusion of deceased patients results in a follow-up rate of 92%.

Outcome measures

Global Assessment (GA), Oswestry Disability Index (ODI), VAS back and leg pain, Zung depression scale. Work status, pain medication and pain frequency was also documented.

Methods

Standardized outcome questionnaires were obtained before treatment and at long-term follow-up. To optimize control for group changers four models of data analysis were used, according to: 1/ intention to treat (ITT), 2/ "as treated" (AT), 3/ per protocol (PP), and 4/ in the conservative group automatically classify group changers as unchanged/worse in GA (GCAC). The initial study was sponsored by Acromed (50.000-100.000 US dollar).

Results

Except for the ITT model the Global Assessment, the primary outcome measure, was significantly better for fusion. The proportion of patients much better or better in the fusion group was 66%, 65%, and 65% in the AT, PP, and GCAC models, respectively. In the conservative group the same proportions were 31%, 37%, and 22%, respectively. However, the ODI, VAS back pain, work status, pain medication and pain frequency was similar between the two groups.

Conclusions

One can conclude that from the patient's perspective, reflected by the global assessment, lumbar fusion surgery is a valid treatment option in CLBP. On the other hand, secondary outcome measures such as ODI and work status, best analysed by the PP model, indicated that substantial disability remained at long-term after fusion as well as after conservative treatment. The lack of objective outcome measures of CLBP and the cross-over problem transforms a RCT to an observational study, i.e. Level 2 evidence. The discrepancy between the primary and secondary outcome measures prevents a strong conclusion on whether to recommend fusion in non-specific low back pain.

6. PELVIC GIRDLE

Sacral spinous processes

Spine J. 2015 Sep 4. pii: S1529-9430(15)01364-9. doi: 10.1016/j.spinee.2015.08.058.

Sacral spinous processes: a morphological classification and biomechanical characterization of strength.

Wang T¹, Fielding LC², Parikh A², Kothari M², Alamin T³.
Author information

Abstract

BACKGROUND:

There has been increasing interest in using the lumbosacral spinous processes for fixation as a less invasive alternative to transpedicular instrumentation. Though prior studies have described the appearance and biomechanics of lumbar spinous processes, few have evaluated the dimensions, morphology, or strength of the sacral spinous processes.

PURPOSE:

Goals of this study were to characterize the morphology of the S1 spinous process and biomechanical strength of the S1 spinous process when loaded in a cranial direction.

STUDY DESIGN:

This study was performed as both an analysis of radiographic data and biomechanical testing of cadaveric specimens.

METHODS:

Lumbosacral spine radiographs and CT scans of twenty patients were evaluated for visibility and morphology of the S1 spinous process. S1 spinous process length, height, and size of the L5-S1 segment were measured. Additionally, thirteen cadaveric lumbosacral spinal segments were obtained for biomechanical testing and morphologic analysis. Specimens were loaded at the S1 spinous process in a cranial direction via a strap, simulating resistance to a flexion moment applied across the L5-S1 segment. Peak load to failure, displacement, and mode of failure were recorded.

RESULTS:

The S1 spinous process was clearly visible on lateral radiographs in only 10% of patients. Mean spinous process length (anterior-posterior) was 11.6mm while mean spinous process height (cranial-caudal) was 23.1mm. We identified six different morphologic subtypes of the S1 spinous process: Fin, Lumbar, Fenestrated, Fused, Tubercle, and Spina Bifida Occulta. During tension loading of the S1 spinous process in the cephalad direction, mean peak load to failure was 439N, with 92% of specimens failing by fracture through the spinous process.

CONCLUSIONS:

This is the first study evaluating sacral spinous process morphology, visibility, and biomechanical strength for potential instrumentation. Compared to lumbar spinous processes, sacral spinous processes are smaller with more variable morphology but have similar peak load to failure. For ideal visualization of morphology and suitability for interspinous fixation, preoperative three-dimensional imaging may be a valuable tool over plain radiographs.

KEYWORDS: Interspinous instrumentation; Morphometry; Sacral anatomy; Sacral spinous process; Spinous process

PMID: 26343242

Tethered cord and perineal pain

Childs Nerv Syst. 2015 Aug 18.

Perineal pain secondary to tethered cord syndrome: retrospective review of single institution experience.

Robbins JW¹, Lundy PA, Gard AP, Puccioni MJ.
Author information

Abstract

OBJECT:

Tethered cord syndrome (TCS) encompasses a spectrum of neurological dysfunction related to excessive tension on the distal spinal cord resulting in anatomic deformation and metabolic disturbance. Symptoms typically manifest as back/leg pain, neurogenic bladder dysfunction, constipation, sphincter abnormalities, and scoliosis. To date, among the least well-described symptoms of TCS is pain or hypersensitivity in the perineal region. The authors reviewed their experience with spinal cord detethering to identify and further characterize those who present with perineal pain or hypersensitivity.

METHODS:

Cases of spinal cord detethering at a single institution were retrospectively reviewed. Patients were initially identified by procedural codes. Cases were reviewed for presenting symptoms, specifically perineal pain or hypersensitivity. Magnetic resonance image (MRI) findings, clinical outcome, and length of follow-up were also noted.

RESULTS:

Of the 491 patients identified, seven patients (1.4 %) were identified as having preoperative perineal pain or hypersensitivity. All of these patients had complete resolution of perineal pain/hypersensitivity at the time of last follow-up. Furthermore, five (71 %) of these patients experienced resolution of all initial symptoms.

CONCLUSION:

Perineal pain or hypersensitivity can be an important symptom of spinal cord tethering. Spinal cord detethering may result in a good outcome and relief of perineal pain or hypersensitivity.

PMID:26280630

Pelvic inclination post surgery

Eur Spine J. 2015 Aug 20.

Is pelvic incidence a constant, as everyone knows? Changes of pelvic incidence in surgically corrected adult sagittal deformity.

Lee JH¹, Na KH, Kim JH, Jeong HY, Chang DG.
Author information

Abstract**PURPOSE:**

Previous investigations have recognized the critical role of pelvic parameters in the setting of a fixed sagittal deformity. Pelvic incidence (PI) is a constant, as everyone knows. However, PI might change reciprocally because of increased shear force on the sacroiliac joint, following surgical correction of fixed lumbar lordosis (LL). The disparity in PI after surgery according to the surgical method, and its impact on final follow-up, has not been reported. This study was undertaken to analyze the disparity of PI before and after surgery, and to evaluate its impact on final sagittal alignment in surgically corrected lordosis when there is immediate postoperative normal alignment following correction of adult sagittal deformity.

METHODS:

A prospective study of 29 subjects with adult spinal deformity (average age: 67.9 years) was conducted. At final evaluation after a minimum 2-year follow-up, normal sagittal alignment was achieved following consecutive sagittal correction. Surgical changes were measured by serial, pelvic standing, lateral, and whole spine radiographs, spinopelvic parameters measured included PI, sacral slope (SS), pelvic tilt (PT), LL, thoracic kyphosis (TK), and sagittal alignment.

RESULTS:

The mean LL was 0.2° before surgery; -59.3° after surgery with pedicle subtraction osteotomy (PSO) (n = 20), anterior lumbar interbody fusion (ALIF) (n = 20, 33 segments), and posterior lumbar interbody fusion (PLIF) (n = 21, 36 segments); and -57.5° at last follow-up. The sagittal vertical axis was +14.8 cm before surgery, -0.7 cm after surgery, and 2.2 cm at last follow-up. The mean PI was 49.4° before surgery, and increased to 55.2° after surgery, 57.5° at 1-year follow-up, and 58.8° at last follow-up (P = 0.02). The mean disparity in PI preoperatively and at last follow-up was 11.4° without sacropelvic fixation (n = 18), and 5.9° with sacropelvic fixation (n = 11) (P = 0.002). Analysis revealed the disparity of PI to be significantly greater in non-sacropelvic fixation, and correlated with the follow-up period (R = 0.442, P = 0.016), but not with age, bone mineral density (BMD), number of fused segments, correction methods, corrected LL, or sagittal alignment.

CONCLUSIONS:

PI increased in all patients with surgically corrected, adult sagittal deformity, following surgical correction of fixed LL. The disparity of PI after surgery was significantly higher in non-sacropelvic fixation, and showed a significant correlation with follow-up period without influence on sagittal alignment at last follow-up.

PMID:26289634

7. PELVIC ORGANS/WOMAN'S HEALTH

Pelvic floor PT

Female Pelvic Med Reconstr Surg. 2015 Sep-Oct;21(5):252-6. doi: 10.1097/SPV.000000000000195.

Pelvic Floor Physical Therapy as Primary Treatment of Pelvic Floor Disorders With Urinary Urgency and Frequency-Predominant Symptoms.

Adams SR¹, Dessie SG, Dodge LE, Mckinney JL, Hacker MR, Elkadry EA.
Author information

Abstract

OBJECTIVE:

To assess the efficacy of pelvic floor physical therapy (PFPT) as primary treatment of urinary urgency and frequency symptoms

METHODS:

We conducted a prospective cohort study of women with urinary urgency and frequency symptoms. Participants underwent PFPT once or twice per week for 10 weeks. Symptom improvement was assessed by validated questionnaires (Pelvic Floor Distress Inventory-Short Form 20 and Patient Global Impression of Improvement), voiding diaries, and subjective measures.

RESULTS:

Fifty-seven participants enrolled; 21 (36.8%) withdrew or completed less than 5 weeks of PFPT. Thirty-one (54.4%) of the remaining 36 participants completed 10 weeks of PFPT. The mean age of the study group (n = 36) was 48.9 ± 15.0 years. The primary diagnoses were overactive bladder syndrome (n = 24, 66.7%) and painful bladder syndrome (n = 12, 33.3%). Women attended a median of 14.0 (interquartile range [IQR], 8.0-16.0) PFPT visits over a median of 11.9 weeks (IQR, 10.0-18.1). At baseline, the median Pelvic Floor Distress Inventory-Short Form 20 score was 79.2 (IQR, 53.1-122.9), and decreased to 50.0 (IQR, 25.0-88.5; P < 0.001) after PFPT; the urinary and prolapse symptom subscales both decreased significantly. Participants reported a decrease from a median of 10.0 voids per day to 8.0 (P < 0.001). On the Patient Global Impression of Improvement, 62.5% of women reported that they were "much better" or "very much better."

CONCLUSIONS:

The PFPT with myofascial release techniques improves urinary symptoms while avoiding medications and more invasive therapies. The high dropout rates suggest that motivation or logistic factors may play a significant role in the utilization and success of this treatment option.

PMID:26313494

Dysmenorrhea/impact

Hum Reprod Update. 2015 Sep 7. pii: dmv039.

What we know about primary dysmenorrhea today: a critical review.

Iacovides S¹, Avidon I², Baker FC³.

Author information

Abstract

BACKGROUND: Primary dysmenorrhea, or painful menstruation in the absence of pelvic pathology, is a common, and often debilitating, gynecological condition that affects between 45 and 95% of menstruating women. Despite the high prevalence, dysmenorrhea is often poorly treated, and even disregarded, by health professionals, pain researchers, and the women themselves, who may accept it as a normal part of the menstrual cycle. This review reports on current knowledge, particularly with regards to the impact and consequences of recurrent menstrual pain on pain sensitivity, mood, quality of life and sleep in women with primary dysmenorrhea.

METHODS: Comprehensive literature searches on primary dysmenorrhea were performed using the electronic databases PubMed, Google Scholar and the Cochrane Library. Full-text manuscripts published between the years 1944 and 2015 were reviewed for relevancy and reference lists were cross-checked for additional relevant studies. In combination with the word 'dysmenorrhea' one or more of the following search terms were used to obtain articles published in peer-reviewed journals only: pain, risk factors, etiology, experimental pain, clinical pain, adenomyosis, chronic pain, women, menstrual cycle, hyperalgesia, pain threshold, pain tolerance, pain sensitivity, pain reactivity, pain perception, central sensitization, quality of life, sleep, treatment, non-steroidal anti-inflammatory drugs.

RESULTS: Women with dysmenorrhea, compared with women without dysmenorrhea, have greater sensitivity to experimental pain both within and outside areas of referred menstrual pain. Importantly, the enhanced pain sensitivity is evident even in phases of the menstrual cycle when women are not experiencing menstrual pain, illustrating that long-term differences in pain perception extend outside of the painful menstruation phase. This enhanced pain sensitivity may increase susceptibility to other chronic pain conditions in later life; dysmenorrhea is a risk factor for fibromyalgia. Further, dysmenorrheic pain has an immediate negative impact on quality of life, for up to a few days every month. Women with primary dysmenorrhea have a significantly reduced quality of life, poorer mood and poorer sleep quality during menstruation compared with their pain-free follicular phase, and compared with the menstruation phase of pain-free control women. The prescribed first-line therapy for menstrual pain remains non-steroidal anti-inflammatory drugs, which are effective in relieving daytime and night-time pain.

CONCLUSION: Further study is needed to determine whether effectively blocking dysmenorrheic pain ameliorates risk for the development of chronic pain disorders and to explore whether it is possible to prevent the development-and not just treat-severe dysmenorrheic pain in adolescent girls. In conclusion, we demonstrate the extensive multi-factorial impact of dysmenorrhea and we encourage and direct researchers to necessary future studies.

KEYWORDS: central sensitization; chronic pain; dysmenorrhea; hyperalgesia; menstrual cycle; pain; pain sensitivity; women

PMID: 26346058

Treatment of endometriosis

J Endocrinol Invest. 2015 Sep 4.

Quality of life and sexual function of women affected by endometriosis-associated pelvic pain when treated with dienogest.

Caruso S¹, Iraci M, Cianci S, Casella E, Fava V, Cianci A.
Author information

Abstract

PURPOSE:

The aim of the study was to evaluate the effects of dienogest (DNG) on quality of life (QoL) and sexual function of women affected by endometriosis pain.

METHODS:

Fifty-four women constituted the study group and were given 2 mg/daily DNG; 48 women were given non-steroidal anti-inflammatory drugs and constituted the control group. To define the endometriosis-associated pelvic pain, the Visual Analogic Scale (VAS) was used. The Short Form-36 (SF-36), the Female Sexual Function Index (FSFI) and the Female Sexual Distress Scale (FSDS) were used to assess the QoL, the sexual function and the sexual distress, respectively. The study included two follow-ups at 3 and 6 months.

RESULTS:

Pain improvement was observed in the study group at 3 ($p < 0.05$) and 6 months ($p < 0.001$) of treatment. At the 1st follow-up, women reported QoL improvements in some functions ($p < 0.05$); at the 2nd follow-up, they reported improvement in all categories ($p < 0.001$). The FSFI score did not change at the 1st follow-up ($p = \text{NS}$). On the contrary, at the 2nd follow-up, it improved with respect to the baseline ($p < 0.05$). At the 2nd follow-up, the FSFI score had risen to 27.8 ($p < 0.001$) and the FSDS score had dropped to 11.3 ($p < 0.001$). No change was observed in the control group ($p = \text{NS}$).

CONCLUSIONS:

The progressive reduction of the pain syndrome reported by women over the treatment period could contribute to improve the QoL and sexual life of women on DNG.

PMID:26337183

Crohn's disease and child birth**Perianal Crohn's disease results in fewer pregnancies but is not exacerbated by vaginal delivery**

Amélie Grouin Charlène Brochard Laurent Siproudhis Jean Leveque Jean-François Bretagne

DOI: <http://dx.doi.org/10.1016/j.dld.2015.08.001>

Background

Despite a high prevalence of Crohn's disease in women of childbearing age, disease-related factors that may impact fertility and perianal Crohn's disease after delivery remain unclear.

Methods

Self-administered questionnaires related to childbirth were completed by women with Crohn's disease referred to a single gastroenterology unit. A survival analysis was performed for statistical purposes.

Results

A total of 184 patients were assessed, including 63 nulliparous women. The cumulative probabilities of having a child were 30%, 51% and 72% at the ages of 25, 30 and 35 years, respectively. Women with colonic disease, prior abdominal surgery and perianal disease were less likely to experience childbirth. After a median follow-up of 165 weeks post-delivery, the cumulative probabilities of fistulizing perianal Crohn's disease occurrence were 8%, 12% and 21% at 1, 2 and 5 years following childbirth, respectively. Contrary to a prior history of perianal Crohn's disease and colonic location, mode of delivery was not associated with perianal fistula. An episiotomy in the group of women with prior anal lesions did not result in a higher rate of fistula recurrence.

Conclusion

Perianal Crohn's disease is associated with fewer pregnancies, however perianal fistulas were less affected by obstetric events than their own natural history.

Keywords: Crohn's disease, Deliveries, Perianal Crohn's disease, Pregnancy

Pregnancy and HA's

Neurology. 2015 Aug 19. pii: 10.1212/WNL.0000000000001954.

Acute headache diagnosis in pregnant women: A hospital-based study.

Robbins MS¹, Farmakidis C², Dayal AK², Lipton RB².
Author information

Abstract

OBJECTIVE:

To characterize demographic and clinical features in pregnant women presenting with acute headache, and to identify clinical features associated with secondary headache.

METHODS:

We conducted a 5-year, single-center, retrospective study of consecutive pregnant women presenting to acute care with headache receiving neurologic consultation.

RESULTS:

The 140 women had a mean age of 29 ± 6.4 years and often presented in the third trimester (56.4%). Diagnoses were divided into primary (65.0%) and secondary (35.0%) disorders. The most common primary headache disorder was migraine (91.2%) and secondary headache disorders were hypertensive disorders (51.0%). The groups were similar in demographics, gestational ages, and most headache features. In univariate analysis, secondary headaches were associated with a lack of headache history (36.7% vs 13.2%, $p = 0.0012$), seizures (12.2% vs 0.0%, $p = 0.0015$), elevated blood pressure (55.1% vs 8.8%, $p < 0.0001$), fever (8.2% vs 0.0%, $p = 0.014$), and an abnormal neurologic examination (34.7% vs 16.5%, $p = 0.014$). In multivariate logistic regression, elevated blood pressure (odds ratio [OR] 17.0, 95% confidence interval [CI] 4.2-56.0) and a lack of headache history (OR 4.9, 95% CI 1.7-14.5) had an increased association with secondary headache, while psychiatric comorbidity (OR 0.13, 95% CI 0.021-0.78) and phonophobia (OR 0.29, 95% CI 0.09-0.91) had a reduced association with secondary headache.

CONCLUSIONS:

Among pregnant women receiving inpatient neurologic consultation, more than one-third have secondary headache. Diagnostic vigilance should be heightened in the absence of a headache history and if seizures, hypertension, or fever are present. Attack features may not adequately distinguish primary vs secondary disorders, and low thresholds for neuroimaging and monitoring for preeclampsia are justified.

PMID:26291282

Procedures and HA's**Increased incidence of migraine in women correlates with obstetrics and gynaecological surgical procedures**

Murugesan Arumugam Varadarajan Parthasarathy

Highlights

- Surgeries like dilation and curettage (D&C), hysterectomy and cesarean increased the incidence of migraine in women.
- D&C, hysterectomy and cesarean must be carried out when necessary.
- First time in the series of literature.

Abstract

Migraine is a common chronic neurological disorder; yet no possible aetiology has been identified so far. There is a debate that migraine worsens in women who undergo procedures such as hysterectomy, dilation and curettage (D&C) or cesarean section for delivery. Hence, the present study was attempted to explore the link between procedures like D&C, hysterectomy and cesarean section for delivery and the prevalence of migraine in women. A total of 185 migraine patients were screened based on the inclusion and exclusion criteria of the International Headache Classification guidelines and 70 females who satisfied the inclusion criteria were included for the study. Of the 70 female patients, the numbers of married and unmarried women were 47 and 27, respectively. About 36 married women (80%, 95% CI: 0.146–0.104) had undergone the procedures related to obstetrics and gynaecology as per their medical history. Interestingly, 12 patients (33%, 95% CI: 0.148–0.176) had not experienced migraine attack prior to the above mentioned surgeries. Although, the age adjusted incidence of diagnosed migraine per 100,000 populations showed higher risk between 16–20 years of age (95% CI: 0.104–0.121), significant risk (95% CI: 0.086–0.113) was also observed in the women of 31–35 years age group in the present study. Based on the present study, surgeries such as D&C, hysterectomy and cesarean section for delivery increased the prevalence of migraine in women. Therefore, such procedures should be avoided unless otherwise essential, particularly in patients with positive past history of migraine.

Keywords: Migraine, Dilation and curettage (D&C), Hysterectomy and cesarean section

8. VISCERA

CV involvement with IBS

Cardiovascular involvement in inflammatory bowel disease: Dangerous liaisons

World Journal of Gastroenterology, 09/10/2015 Filimon AM, et al.

A beneficial effect was demonstrated for salicylates, but not for steroids or azathioprine. tumor necrosis factor- α antagonists, which are highly effective in the reduction of inflammation and in the restoration of the digestive mucosa, lead to conflicting cardiovascular effects, as they seem to reduce the risk for ischemic heart disease but increase the rate of cerebrovascular events. Future supplemental treatment strategies that may reduce the atherothrombotic risk during periods of inflammatory bowel disease (IBD) activity should be explored.

Microbs and IBS

Curr Allergy Asthma Rep. 2015 Oct;15(10):562. doi: 10.1007/s11882-015-0562-9.

Immune Responses to Intestinal Microbes in Inflammatory Bowel Diseases.

Hansen JJ¹.

Author information

Abstract

Inflammatory bowel diseases (IBDs), including Crohn's disease and ulcerative colitis, are characterized by chronic, T-cell-mediated inflammation of the gastrointestinal tract that can cause significant, lifelong morbidity. Data from both human and animal studies indicate that IBDs are likely caused by dysregulated immune responses to resident intestinal microbes. Certain products from mycobacteria, fungi, and Clostridia stimulate increased effector T cell responses during intestinal inflammation, whereas other bacterial products from Clostridia and Bacteroides promote anti-inflammatory regulatory T cell responses. Antibody responses to bacterial and fungal components may help predict the severity of IBDs. While most currently approved treatments for IBDs generally suppress the patient's immune system, our growing understanding of microbial influences in IBDs will likely lead to the development of new diagnostic tools and therapies that target the intestinal microbiota.

PMID: 26306907

IBS increases risk of pneumonia

Am J Gastroenterol. 2015 Sep 8. doi: 10.1038/ajg.2015.284.

Inflammatory Bowel Disease Patients Are at Increased Risk of Invasive Pneumococcal Disease: A Nationwide Danish Cohort Study 1977-2013.

Kantsø B¹, Simonsen J², Hoffmann S³, Valentiner-Branth P⁴, Petersen AM^{5,6}, Jess T^{2,7}.

Author information

Abstract

OBJECTIVES:

Inflammatory bowel disease (IBD), Crohn's disease (CD), and ulcerative colitis (UC) are chronic diseases characterized by an inappropriate immune response, which may also increase the risk of infections. We investigated the risk of invasive pneumococcal disease (IPD) before and after diagnosis of IBD in a population-based cohort study.

METHODS:

In a cohort of 74,156 IBD patients and 1,482,363 non-IBD controls included and followed during 1977-2013, hazard rate ratios (HRs) for IPD in IBD patients vs. controls were calculated by Cox regression. Within the IBD group, we also calculated the risk according to ever use of specific IBD medications. Next, using conditional logistic regression, we evaluated the odds of IPD prior to IBD diagnosis.

RESULTS:

The HRs for IPD within the first 6 months after IBD diagnosis were significantly and more than threefold increased and then decreased to a constant level, which for CD was significantly increased (approximately twofold, HR, 1.99; 95% confidence interval (CI), 1.59-2.49) and for UC non-significantly just above 1. IBD medication use including tumor necrosis factor alpha antagonists had limited impact on the risk of IPD, although having ever used azathioprine increased the risk of IPD in patients with UC (HR, 2.38; 95% CI, 1.00-5.67). Up to 4 years prior to IBD diagnosis, the odds ratio for IPD was significantly increased (UC HR, 1.51, 95% CI, 1.05-2.17; CD HR, 1.79, 95% CI, 1.05-3.03).

CONCLUSIONS:

The risk of IPD is significantly increased both before and after diagnosis of IBD, with limited impact of IBD medications. This suggests that the risk of IPD in patients with IBD is related to the underlying altered immune response in these patients. Am J Gastroenterol advance online publication, 8 September 2015; doi:10.1038/ajg.2015.284.

PMID: 26346865

Gal bladder disease and IBS

J Dig Dis. 2015 Sep 1. doi: 10.1111/1751-2980.12286.

Is Gallstone disease associated with inflammatory bowel diseases? A meta-analysis.

Zhang FM¹, Xu CF¹, Shan GD¹, Chen HT¹, Xu GQ¹.

Author information

Abstract

AIM:

To investigate the association between inflammatory bowel disease (IBD) and Gallstone disease (GD) by performing a meta-analysis.

METHODS:

PubMed, Medline, Embase, Web of Science, and the Cochrane Library were searched for relevant articles published between January 1980 and February 2015. All statistical analyses were performed using STATA 12.0 software. A fixed-effects model was adopted; heterogeneity was evaluated by chi-square test and I^2 statistic; publication bias was assessed by Begg's and Egger's tests.

RESULTS:

Five studies qualified for inclusion in the meta-analysis. Patients with IBD had a significantly higher prevalence of GD when compared with subjects in the control group (Odds Ratio [OR] 1.73, 95% Confidence Interval [CI]: 1.40-2.12, $P < 0.0001$). Subgroup analyses showed a significantly higher prevalence of GD in patients with Crohn's disease (CD) (OR 2.05, 95% CI: 1.61-2.63, $P < 0.0001$). However, no significant difference in prevalence of gallstone disease was observed between patients with ulcerative colitis (UC) and controls (OR 1.12, 95% CI: 0.75-1.68, $P = 0.585$). Studies from Italy, Sweden and U.K revealed a higher prevalence of GD in patients with IBD. No heterogeneity ($I^2 = 25.2\%$, $P = 0.228$) or publication bias was observed in our meta-analysis (Begg's test, $P = 0.711$; Egger's test, $P = 0.805$).

CONCLUSION:

Our meta-analysis suggests a trend of higher prevalence of GD in IBD patients, and especially in patients with CD. More rigorous, large scale multi-center studies are required to investigate the association between GD and IBD.

KEYWORDS: gallstone disease; inflammatory bowel disease; meta-analysis
PMID:26332254

13. CRANIUM/TMJ

Cervicogenic tinnitus

Phys Ther. 2015 Jun 4.

Diagnostic Value of Clinical Cervical Spine Tests in Patients With Cervicogenic Somatic Tinnitus.

Michiels S¹, Van de Heyning P², Truijen S³, De Hertogh W⁴.

Author information

Abstract

BACKGROUND: Tinnitus can be related to many different etiologies, such as hearing loss or a noise trauma, but it also can be related to the somatosensory system of the cervical spine. The diagnosis of cervicogenic somatic tinnitus (CST) is made when the predominant feature is the temporal coincidence of appearance or increase of both neck pain and tinnitus.

OBJECTIVE: The aim of this study was to assess the diagnostic value of clinical cervical spine tests in people with CST.

DESIGN: A cross-sectional study was conducted.

SETTING: The study was conducted at a tertiary referral center.

PATIENTS: Consecutive adult patients with chronic subjective nonpulsatile tinnitus were included. Exclusion criteria were vertigo, Ménière disease, middle ear pathology, intracranial pathology, cervical spine surgery, whiplash trauma, and temporomandibular dysfunction.

MEASUREMENTS: A full ear, nose, and throat examination was conducted to classify patients into CST and non-CST groups. The physical therapist examination included completion of the Neck Bournemouth Questionnaire (NBQ) and the following clinical cervical spine tests: manual rotation test, adapted Spurling test (AST), trigger point tests, and tests for strength and endurance of the deep neck flexors.

RESULTS: Eighty-seven patients with tinnitus were included, of whom 37 (43%) were diagnosed with CST. The diagnosis of CST becomes less likely with NBQ scores of <14 points (sensitivity of 80%, likelihood ratio [LR] of 0.3, and posttest probability of 19%). Absence of trigger points corresponded to an LR of 0.3, a sensitivity of 82%, and a posttest probability of 22%. A positive manual rotation test and AST indicate a higher probability of CST (LR of 5, specificity of 90%, and posttest probability of 78%).

LIMITATIONS: A limited number of clinical cervical spine tests were used in this study.

Although tests with good validity and reliability were included, additional tests could provide more information on cervical spine dysfunction in patients with CST.

CONCLUSIONS: Clinical cervical spine tests can support the diagnostic process for CST. An NBQ score of <14 points and the absence of trigger points can help to exclude CST. In contrast, a positive manual rotation test and AST can help to include CST. In future studies, these tests should be included in a multidisciplinary assessment of patients with suspected CST.

PMID:26045606

Oral function in adult Iranians

Community Dent Oral Epidemiol. 2015 Aug 20. doi: 10.1111/cdoe.12189.

A new insight into masticatory function and its determinants: a latent class analysis.

Feizi A¹, Keshteli AH², Khazaei S³, Adibi P⁴.

Author information

Abstract

OBJECTIVE:

Masticatory function is an important factor for preservation of general health. Epidemiologic data on masticatory function and its determinants among Iranian population are sparse, and no study has evaluated masticatory function using latent class analysis (LCA). This study was conducted to investigate the masticatory function and its determinants among a large sample of Iranian adults.

METHODS:

In a cross-sectional study among 8691 adults, masticatory function was investigated using a validated questionnaire. LCA and latent class regression (LCR) were applied to identify classes of masticatory function and its potential determinants, respectively. In addition, multigroup LCA was conducted based on gender and age categories.

RESULTS:

In total, 11.24% and 24.87% of participants had poor and moderate masticatory function, respectively. Males (class size: 14.33%) were more likely to have poor masticatory function than females (class size: 2.35%) ($P < 0.001$). The results of LCR showed that higher age [adjusted odds ratio (OR): 1.09, 95% confidence interval (95% CI): 1.07-1.11, $P < 0.001$], male gender (OR: 1.37, 95% CI: 1.01-1.87, $P < 0.05$), and low physical activity (OR: 1.41, 95% CI: 1.08-1.85, $P < 0.05$) were associated with poor masticatory function. Nonsmokers had a lower chance of being in poor masticatory function class than heavy smokers (OR: 0.21, 95% CI: 0.11-0.38, $P < 0.001$).

CONCLUSION:

The prevalence of poor masticatory function is high among Iranian adults. Aging, male gender, low levels of physical activity, and smoking were found to be associated with poor masticatory function.

KEYWORDS: adults; epidemiology; oral health; tooth loss

PMID: 26291317

Jaw motor function**Effect of a repeated jaw motor task on masseter muscle performance**

Takashi Iida Osamu Komiyama Hisae Honki Yoshihiro Komoda Lene Baad-Hansen Misao Kawara Peter Svensson

DOI: <http://dx.doi.org/10.1016/j.archoralbio.2015.08.005>

Highlights

- We investigated the effects of 5-days jaw-motor tasks on masseter muscle (MM).
- Participants performed a tooth-clenching task (TCT) on five consecutive days.
- Repeated TCT may improve the performance of MM in terms of accuracy.

ABSTRACT**Objective**

The aim of this study was to investigate the effects of 5-days repeated jaw-motor tasks on masseter muscle accuracy performance.

Design

Sixteen healthy participants performed a tooth-clenching task (TCT) of 58-minutes on five consecutive days. During measurements, electromyography (EMG) of both masseter muscles was recorded. Each day, the 100% maximum voluntary contraction (MVC) level was determined before the TCT. In the first and third TCT series, participants were instructed to target force levels without visual feedback. During the second TCT series, visual feedback on muscle activity level was displayed. One series consisted of three force levels (10%, 20%, and 40% MVC). In the series, participants alternated between a 30-s rest-block and a 30-s task-block for 360 s. In the task-block, participants alternated between a 5-s rest-block and a 5-s task-block. EMG activity during epochs of 5-s was quantified by calculation of the root-mean-square (RMS) values. To evaluate the accuracy of the performance, the coefficient of determination (CD) of the target force level–EMG curve was calculated from all series.

Results

No significant day-to-day differences in EMG RMS amplitudes were observed during MVC. CDs differed significantly between the five days ($P<0.001$). CDs in the first series on day 1 were significantly lower than CDs in the first series on days 4 and 5 ($P<0.05$).

Conclusions

The findings suggest that a rigorous training paradigm may improve the performance of masseter muscles in terms of accuracy but not MVC. This might have implications for understanding the rehabilitation of patients with functional disorders in the stomatognathic system. (250 words)

Keywords:

Motor learning, Masseter muscle, Tooth clenching, EMG

Teeth and jaw function

Eur J Oral Sci. 2015 Aug 19. doi: 10.1111/eos.12203.

Importance of teeth in maintaining the morphology of the adult mandible in humans.

Hutchinson EF¹, Farella M², Kramer B¹.

Author information

Abstract

Edentulism can negatively affect both masticatory performance and dietary intake by altering the patterns of biomechanical stress and strain, which in turn modifies the morphology of the different regions of the mandible. The morphological changes in the mandible caused by these stressors are unknown when comparing mandibles across varying dentition states. This study investigated differences in the morphology of human mandibles across various states of the dentition. In total, 498 mandibles of individuals between 20 and 80 yr of age at death were sourced from the Raymond A. Dart Collection of Human Skeletons. These included fully dentate (n = 95), partially edentulous (n = 333), and fully edentulous (n = 70) mandibles. Twelve linear anthropometric measurements of the mandible were derived from digitized landmarks located on its external surface. Data analysis included geometric morphometrics and multivariate analyses. Compared with dentate and partially edentulous mandibles, fully edentulous mandibles showed a shorter alveolar height (-0.4 mm), a shorter mandibular body length (-4 mm), a larger gonial angle (+4°), a more obtuse mental angle (+4.7°), a broader bicondylar width (+3.8 mm), and a taller ramus height (+1.6 mm). Thus, edentulous states are associated with an altered mandibular morphology, which may result from a reduction in jaw function.

KEYWORDS: dentition; edentulism; mandible; morphology
PMID:26287722

14. HEADACHES

HA and central sensitization

Headache. 2015 Sep 9. doi: 10.1111/head.12651.

Central Nervous System Underpinnings of Sensory Hypersensitivity in Migraine: Insights from Neuroimaging and Electrophysiological Studies.

Demarquay G¹, Mauguière F².

Author information

Abstract

Whereas considerable data have been generated about the pathophysiology of pain processing during migraine attacks, relatively little is known about the neural basis of sensory hypersensitivity. In migraine, the term "hypersensitivity" encompasses different and probably distinct pathophysiological aspects of sensory sensitivity. During attacks, many patients have enhanced sensitivity to visual, auditory and/or olfactory stimuli, which can enhance headache while interictally, migraineurs often report abnormal sensitivity to environmental stimuli that can cause nonpainful discomfort. In addition, sensorial stimuli can influence and trigger the onset of migraine attacks. The pathophysiological mechanisms and the origin of such sensitivity (individual predisposition to develop migraine disease or consequence of repeated migraine attacks) are ill understood. Functional neuroimaging and electrophysiological studies allow for noninvasive measures of neuronal responses to external stimuli and have contributed to our understanding of mechanisms underlying sensory hypersensitivity in migraine.

The purpose of this review is to present pivotal neuroimaging and neurophysiological studies that explored the basal state of brain responsiveness to sensory stimuli in migraineurs, the alterations in habituation and attention to sensory inputs, the fluctuations of responsiveness to sensory stimuli before and during migraine attacks, and the relations between sensory hypersensitivity and clinical sensory complaints.

KEYWORDS: PET; attention; evoked potential; fMRI; habituation; hypersensitivity; migraine; pathophysiology; photophobia

PMID: 26350583

Classifying HA's

Headache. 2015 Sep 3. doi: 10.1111/head.12646.

The Frequent Unusual Headache Syndromes: A Proposed Classification Based on Lifetime Prevalence.

Valença MM^{1,2}, de Oliveira DA¹.

Author information

Abstract

BACKGROUND:

There is no agreement on a single cutoff point or prevalence for regarding a given disease as rare. The concept of what is a rare headache disorder is even less clear and the spectrum from a very frequent, frequent, occasional to rare headache syndrome is yet to be established.

OBJECTIVE:

An attempt has been made to estimate the lifetime prevalence of each of the headache subtypes classified in the ICHD-II.

METHOD:

Using the ICHD-II, 199 different headache subtypes were identified. The following classification was made according to the estimated lifetime prevalence of each headache disorder: very frequent (prevalence >10%); frequent (between 1 and 10%); occasional (between 0.07 and 1%); and unusual or rare (<0.07%).

RESULTS:

One hundred and fifty-four of 199 (77%) were categorized as unusual headache disorders, 7/199 (4%) as very frequent, 9/199 (5%) as frequent, and 29/199 (15%) as occasional forms of headache disorder.

CONCLUSION:

The unusual headache syndromes do not appear to be as infrequent in clinical practice as has been generally believed. About three-fourths of the classified headache disorders found in the ICHD-II can be considered as rare. This narrative review article may be regarded as an introduction to the concept of unusual headaches and a proposed classification of all headaches (at least those listed in the ICHD-II).

KEYWORDS: classification; lifetime prevalence; orphan disease; rare disease; unusual headache
PMID:26335933

17. SHOULDER GIRDLE

Position measurements

Phys Ther. 2015 Sep 3.

Reliability and Validity of the Measurement of Scapular Position Using the Protractor Method.

O'Shea A¹, Kelly R², Williams S³, McKenna L⁴.

Author information

Abstract

BACKGROUND:

The Protractor method is a proposed clinical assessment tool, the first to measure vertical scapular position that directly compares scapular to spinal landmarks. This tool has the potential to reliably and accurately measure excessive scapular elevation/depression **OBJECTIVE:** To determine reliability and validity of the protractor method to measure resting scapular position.

DESIGN:

Inter and intra-tester reliability and validity study.

METHODS:

Testing was conducted on the same day by two physiotherapists who were blinded to each other's results. The vertical distances between the spinous process of C7 and the superior margin of the medial aspect of the spine of the scapula (C7 method), and the spinous process of T8 and the inferior angle of the scapula (T8 method) were palpated and measured on the symptomatic shoulder in 34 subjects with current shoulder pain using the protractor method. Measurements were compared to 2-Dimensional camera analysis to assess validity.

RESULTS:

For inter-tester reliability, SEM, ME's and ICCs were 6.3mm, 17.3mm, and 0.78 respectively for the C7 method and 5.7mm, 15.7mm and 0.82 respectively for the T8 method. For intra-tester reliability SEM, ME's and ICCs were < 0.9mm, <2.5mm and 0.99 respectively. For validity, significant correlations and mean differences were $r = 0.83$ and 10.1mm for the C7 method, and $r = 0.92$ and 2.2mm for the T8 method respectively.

LIMITATION:

The results of this study are limited to static measurement of the scapula in one plane.

CONCLUSION:

Both protractor methods were shown to have good reliability, and acceptable validity, with the T8 method demonstrating superior clinical utility. The authors recommend the clinical use of the T8 method for measurement of excessive resting scapular elevation or depression.

PMID:26337260

24. ELBOW**Lateral epicondylitis and PT (PT is effective)**

BMC Musculoskelet Disord. 2015 Aug 25;16(1):223. doi: 10.1186/s12891-015-0665-4.

Efficacy of physical therapy for the treatment of lateral epicondylitis: a meta-analysis.

Weber C^{1,2}, Thai V³, Neuheuser K^{4,5}, Groover K^{6,7}, Christ O⁸.

Author information

Abstract

BACKGROUND:

Physical therapy for the treatment of lateral epicondylitis (LE) often comprises movement therapies, extracorporeal shockwave therapy (ECSWT), low level laser therapy (LLLT), low frequency electrical stimulation or pulsed electromagnetic fields. Still, only ECSWT and LLLT have been meta-analytically researched.

METHODS:

PUBMED, EMBASE and Cochrane database were systematically searched for randomized controlled trials (RCTs). Methodological quality of each study was rated with an adapted version of the Scottish Intercollegiate Guidelines Network (SIGN) checklist. Pain reduction (the difference between treatment and control groups at the end of trials) and pain relief (the change in pain from baseline to the end of trials) were calculated with mean differences (MD) and 95 %-Confidence intervals (95 % CI).

RESULTS:

One thousand one hundred thirty eight studies were identified. One thousand seventy of those did not meet inclusion criteria. After full articles were retrieved 16 studies met inclusion criteria and 12 studies reported comparable outcome variables. Analyses were conducted for overall pain relief, pain relief during maximum handgrip strength tests, and maximum handgrip strength. There were not enough studies to conduct an analysis of physical function or other outcome variables.

CONCLUSIONS:

Differences between treatment and control groups were larger than differences between treatments. Control group gains were 50 to 66 % as high as treatment group gains. Still, only treatment groups with their combination of therapy specific and non-therapy specific factors reliably met criteria for clinical relevance. Results are discussed with respect to stability and their potential meaning for the use of non-therapy specific agents to optimize patients' gain.

PMID: 26303397

28. REPLACEMENTS**Increase risk of heart attach after THR**

Arthritis Rheumatol. 2015 Aug 31. doi: 10.1002/art.39246.

Total Joint Arthroplasty and the Risk of Myocardial Infarction - A General Population, Propensity Score-Matched Cohort Study.

Lu N^{1,2}, Misra D¹, Neogi T¹, Choi HK^{1,2}, Zhang Y¹.

Author information

Abstract

BACKGROUND:

We sought to replicate recent findings that total knee arthroplasty (TKA) or total hip arthroplasty (THA) surgery substantially reduces the risk of serious cardiovascular events among osteoarthritis patients in a UK general population.

METHODS:

We conducted a time-stratified propensity score-matched cohort study for the outcome of myocardial infarction (MI). The study population included individuals aged ≥ 50 years who had a Readcode diagnosis of knee osteoarthritis (to evaluate TKA) or hip osteoarthritis (to evaluate THA) between January 2000 and December 2012.

RESULTS:

Among 13,849 patients who underwent TKA and 13,849 matched non-TKA controls 306 and 286 developed MI during the follow-up, respectively. During the first postoperative month, the risk of MI was substantially increased among TKA group compared with non-TKA group (hazard ratio 8.75; 95% CI, 3.11-24.62), and then gradually declined during the subsequent follow-up. The HR of the entire follow-up was 0.98 (95% CI, 0.82-1.18). The corresponding HRs for THA (n=6,063) compared with non-THA were 4.33 (95% CI, 1.24-15.21) and 0.87 (95% CI, 0.66-1.15), respectively. Using venous thromboembolism as a positive control outcome, both the first month and overall HRs of MI were substantially increased for TKA and for THA, respectively.

CONCLUSION:

These findings provide the first general population-based evidence that TKA and THA among osteoarthritis patients are associated with a substantially increased risk of MI during the immediate postoperative period. However, its overall long-term impact was null, unlike the risk of venous thromboembolism that remained years after the procedure. This article is protected by copyright. All rights reserved.

KEYWORDS: Myocardial Infarction; Propensity Score; Total Hip Arthroplasty; Total Knee Arthroplasty

PMID: 26331443

Risk of DVT

National incidence and ten-year trends in deep vein thrombosis following total knee and total hip replacement

Journal of Vascular Surgery, 09/08/2015 Dua A, et al.

A focus on DVT prophylaxis has decreased national rates of DVT after TKR and THR. However, older patients, men, African Americans, and patients with more comorbidities appear to be especially at risk for DVT. Mortality was almost eight times higher than in patients who did not develop DVT, and a LOS double that of unaffected patients significantly affects the quality of care. A focus on DVT prophylaxis, and perhaps more aggressive management of the at-risk population, may help decrease the rate of DVT.

30 A. IMPINGEMENT**Variation in neck****Femoral Neck Anteversion and Lesser Trochanteric Retroversion in Patients With Ischiofemoral Impingement: A Case-Control Magnetic Resonance Imaging Study**

Juan Gómez-Hoyos, M.D. Ricardo Schröder, P.T. Manoj Reddy, B.S. Ian James Palmer, Ph.D. Hal David Martin, D.O.

DOI: <http://dx.doi.org/10.1016/j.arthro.2015.06.034>

Purpose

To assess the relationship between the femoral neck version (FNV) and lesser trochanteric version (LTV) in symptomatic patients with ischiofemoral impingement (IFI) as compared with asymptomatic hips.

Methods

The FNV and LTV of patients with symptomatic IFI who underwent magnetic resonance imaging assessment including a standardized femoral version study protocol were compared with those of patients with asymptomatic hips in this retrospective, observational study. Patients with isolated intra-articular pathology, prior hip fracture, and lesser trochanter deformity were excluded. The FNV, LTV, ischiofemoral space, and quadratus femoris space were evaluated on axial magnetic resonance imaging, as well as the angle between the LTV and the FNV. Independent t-tests were used to determine differences between groups.

Results

Data from 11 out of 15 symptomatic patients and 250 out of 320 asymptomatic patients were analyzed. The mean ischiofemoral space (11.9 v 22.9 mm; $P < .001$; 95% confidence interval [CI], 6.9 to 15.2) and mean quadratus femoris space (7.2 mm v 14.9 mm; $P < .001$; 95% CI, 5.4 to 8.6) were significantly smaller in symptomatic patients versus asymptomatic patients. There was no difference in mean LTV between groups (-23.6° v -24.2° ; $P = .8$; 95% CI, -7.5 to 6.4), however, the mean FNV (21.7° v 14.1° ; $P = .02$; 95% CI, -14.2 to -1.1) and the angle between the FNV and LTV on average (45.4° v 38.3° ; $P = .01$; 95% CI, -12.9 to -1.3) were higher in symptomatic than in asymptomatic patients, with statistical significance.

Conclusions

The femoral mean neck anteversion and the mean angle between the FNV and LTV are significantly higher in patients with symptomatic IFI. The mean LTV is not increased in patients with symptomatic ischiofemoral impingement as compared with those patients with asymptomatic hips.

Level of Evidence

Level III, diagnostic study.

32 A. KNEE/ACL**Repair best at 4-6 weeks**

Knee. 2015 Aug 19. pii: S0968-0160(15)00162-3. doi: 10.1016/j.knee.2015.07.008.

Influence of anterior cruciate ligament rupture on secondary damage to menisci and articular cartilage.Yan F¹, Xie F², Gong X¹, Wang F¹, Yang L³.

Author information

Abstract

OBJECTIVE:

To evaluate the influence of anterior cruciate ligament (ACL) rupture on secondary damage to menisci and articular cartilage.

METHOD:

A total of 366 patients with knee ACL rupture were divided into six groups according to the time span from the initial injury to ACL reconstruction: (a) less than 1.5months, (b) between 1.5 and three months, (c) between three and six months, d) between six and 12months, (e) between 12 and 24months, and (f) more than 24months. During ACL reconstruction, impairment of meniscal or chondral integrity was systematically documented.

RESULTS:

Among these 366 patients, meniscal damage was found in 223 patients (60.9%); and chondral damage was found in 75 patients (20.5%). In addition, the incidence of medial meniscal and chondral damage was significantly increased with longer time span from the initial injury to ACL reconstruction. We found that the incidence for medial meniscal and that for chondral damages were 6.1 and 9.9 times higher in patients with a time from initial injury (TFI)>24months than those in patients with a TFI<1.5months, respectively.

CONCLUSION:

In the present study, correlations between secondary damages to the menisci and/or the articular cartilage and time post initial injury were found in Chinese population. Our data suggested that ACL reconstruction operation should be done as early as possible after ACL rupture to avoid secondary meniscal and/or chondral damage. We recommend that the best time range for ACL reconstruction is between four and six weeks post initial injury.

KEYWORDS: ACL rupture; Meniscal and chondral damage

PMID: 26298288

33. MENISCUS

Joint line tenderness good for lateral not for medial

Arch Orthop Trauma Surg. 2015 Aug 23.

Gender differences in the accuracy of joint line tenderness for arthroscopically confirmed meniscal tears.

Haviv B¹, Bronak S, Kosashvili Y, Thein R.
Author information

Abstract

INTRODUCTION:

The reliability of joint line tenderness was previously investigated among other clinical tests for the diagnosis of meniscal pathology with variable results. The aim of this study was to evaluate and compare the accuracy of joint line tenderness as a clinical diagnosing test for arthroscopically confirmed meniscal tears between males and females.

MATERIALS AND METHODS:

For the purpose of preoperative joint line tenderness accuracy calculations, this study included male and female groups of patients who have had knee arthroscopy following preoperative diagnosis of meniscal tear. Overall, 195 patients were included in the study, 134 males and 61 females. The mean age was 43.4 (13-76) years.

RESULTS:

In the male group, the diagnosis of meniscal tear by joint line tenderness was correct in 84 (62.7 %) of 134 knees for the medial side and in 115 (85.8 %) for the lateral side. In the female group, the diagnosis was correct in 35 (57.4 %) of 61 knees for the medial side and in 57 (93.4 %) for the lateral side. In order to refine the accuracy of medial joint line tenderness, the data were recalculated for patients with medial meniscal tears and no chondral lesion or cruciate ligament tears; however, the accuracy remained low.

CONCLUSIONS:

The physical finding of joint line tenderness of the knee as a test for lateral meniscal tear was found reliable in both males and females. For medial meniscal tears, the test had low reliability and thus less useful if used alone, in both genders.

PMID: 26298560

34. PATELLA**Dislocations and shape of condyle**

Arch Orthop Trauma Surg. 2015 Aug 23.

Influence of posterior lateral femoral condyle geometry on patellar dislocation.

Gillespie D¹, Mandziak D, Howie C.
Author information

Abstract

INTRODUCTION:

Patellar instability is a condition with multifactorial aetiology, potentially involving soft tissue characteristics, the bony anatomy of the patella, femur and tibia, and alignment of the lower limb. The shape of the distal femur and patellofemoral joint has been frequently studied using plain orthogonal and skyline radiographs. We investigated a possible contribution of hypoplasia of the lateral femoral condyle in the axial plane to patellar instability.

METHODS:

The geometry of the distal femur and alignment of the lower limb on plain radiographs and MRI scans in 25 young adult patients with patellar instability was measured, and compared to a control group of 75 age-matched patients. Measurements were validated by intra-observer and inter-observer reliability studies, and multivariate analysis was used to compare the groups. Cases with and without high Beighton score or knee hyperextension were also compared.

RESULTS:

The anatomical posterior condylar angle, anterior condylar angle and sulcus angle on axial MRI scans showed insignificant differences between groups. The Blackburne-Peel ratio, anatomical femoro-tibial angle and femoral joint angle showed significant differences between groups, but not the tibial plateau angle. There was a significant correlation between posterior condylar angle and valgus knee alignment. In cases with joint hypermobility, femoral joint angle was significantly increased and posterior condylar angle was significantly decreased.

CONCLUSIONS:

Multiplanar hypoplasia of the lateral femoral condyle resulting in a valgus knee is a risk factor for patellar instability in young patients without osteoarthritis or joint hypermobility. Isolated posterior lateral condyle hypoplasia appears to be unrelated to patellar instability.

PMID:26298562

37. OSTEOARTHRITIS/KNEE**Varus thrust**

Phys Ther. 2015 Jun 18.

Association of Varus Thrust With Pain and Stiffness and Activities of Daily Living in Patients With Medial Knee Osteoarthritis.

Fukutani N¹, Iijima H², Fukumoto T³, Uritani D⁴, Kaneda E⁵, Ota K⁶, Aoyama T⁷, Tsuboyama T⁸, Matsuda S⁹.

Author information

Abstract

BACKGROUND:

Increasing evidence highlights potential associations between varus thrust and health domains associated with knee osteoarthritis (OA).

OBJECTIVE:

The aim of this study was to investigate the association between varus thrust and 2 subcategories- "pain and stiffness" and "activities of daily living (ADL)"-of the Japanese Knee Osteoarthritis Measure (JKOM).

DESIGN:

This was a cross-sectional study.

METHODS:

In total, 296 outpatients with knee OA visiting orthopedic clinics were enrolled. The inclusion criteria were age ≥ 50 years, medial knee OA and Kellgren-Lawrence (K/L) grade ≥ 1 in one or both knees, and the ability to walk independently. Standard posterior-anterior knee radiographs were measured for varus alignment. Participants were video recorded while walking and were evaluated for the presence or absence of varus thrust. Pain and stiffness of the knee joint and ADL were evaluated using the JKOM. Multivariate regressions (outcomes: pain and stiffness and ADL; predictor variable: varus thrust) were performed.

RESULTS:

Varus thrust was present in 46 (16.2%) of 284 patients. Multivariate regression analyses demonstrated that varus thrust is independently associated with pain and stiffness, adjusted for age, sex, body mass index, K/L grade, and varus alignment ($\beta=.17$, $P=.005$). However, the association between varus thrust and ADL was not significant ($\beta=.11$, $P=.058$). Based on sensitivity analyses, including participants of K/L grade 1 had little influence on this analysis.

LIMITATIONS:

Only 16.2% of participants had a varus thrust. Moreover, a cause-effect relationship between varus thrust and pain and stiffness remains unknown due to the cross-sectional design of this study.

CONCLUSIONS:

Varus thrust was associated with pain and stiffness in patients with medial knee OA. However, the association between varus thrust and ADL did not reach significance.

PMID: 26089038

Altered gait**Knee joint contact mechanics during downhill gait and its relationship with varus/valgus motion and muscle strength in patients with knee osteoarthritis**

Shawn Farrokhi Carrie A. Voycheck Jonathan A. Gustafson G. Kelley Fitzgerald Scott Tashman

Highlights

- Knee kinematics & muscle strength were examined in patients with osteoarthritis.
- Joint contact during downhill gait was assessed using Dynamic Stereo X-ray methods.
- Patients with osteoarthritis had increased knee contact point excursion & velocity.
- Altered knee contact patterns were associated with increased varus knee motion.
- However, muscle weakness was not associated with altered knee joint contact.

Abstract**Objective**

The objective of this exploratory study was to evaluate tibiofemoral joint contact point excursions and velocities during downhill gait and assess the relationship between tibiofemoral joint contact mechanics with frontal-plane knee joint motion and lower extremity muscle weakness in patients with knee osteoarthritis (OA).

Methods

Dynamic stereo X-ray was used to quantify tibiofemoral joint contact mechanics and frontal-plane motion during the loading response phase of downhill gait in 11 patients with knee OA and 11 control volunteers. Quantitative testing of the quadriceps and the hip abductor muscles was also performed.

Results

Patients with knee OA demonstrated larger medial/lateral joint contact point excursions ($p < 0.02$) and greater heel-strike joint contact point velocities ($p < 0.05$) for the medial and lateral compartments compared to the control group. The peak medial/lateral joint contact point velocity of the medial compartment was also greater for patients with knee OA compared to their control counterparts ($p = 0.02$). Additionally, patients with knee OA demonstrated significantly increased frontal-plane varus motion excursions ($p < 0.01$) and greater quadriceps and hip abductor muscle weakness ($p = 0.03$). In general, increased joint contact point excursions and velocities in patients with knee OA were linearly associated with greater frontal-plane varus motion excursions ($p < 0.04$) but not with quadriceps or hip abductor strength.

Conclusion

Altered contact mechanics in patients with knee OA may be related to compromised frontal-plane joint stability but not with deficits in muscle strength.

Keywords:

Kinematics, Contact mechanics, Instability, Quadriceps, Hip abductors

Altered knee extensor muscle contraction

Exp Gerontol. 2015 Sep 3. pii: S0531-5565(15)30029-2. doi: 10.1016/j.exger.2015.08.016.

Reduced rate of knee extensor torque development in older adults with knee osteoarthritis is associated with intrinsic muscle contractile deficits.

Callahan DM¹, Tourville TW², Slauterbeck JR², Ades PA¹, Stevens-Lapsley J³, Beynon BD², Toth MJ⁴.

Author information

- ¹Department of Medicine, University of Vermont, College of Medicine, Burlington, VT, United States.
- ²Department of Orthopaedics and Rehabilitation, University of Vermont, College of Medicine, Burlington, VT, United States.
- ³Department of Physical Medicine and Rehabilitation, University of Colorado, Denver, CO, United States.
- ⁴Department of Medicine, University of Vermont, College of Medicine, Burlington, VT, United States; Department of Molecular Physiology and Biophysics, University of Vermont, College of Medicine, Burlington, VT, United States. Electronic address: michael.toth@uvm.edu.

Abstract

We examined the effect of knee osteoarthritis on the rate of torque development (RTD) of the knee extensors in older adults with advanced-stage knee osteoarthritis (OA; n=15) and recreationally-active controls (n=15) of similar age, sex and health status, as well as the relationship between RTD and the size and contractility of single muscle fibers. OA participants had lower RTD when expressed in absolute terms (Nm/ms). There were sex differences in peak RTD ($P < 0.05$), with greater RTD in men, but no group by sex interaction effects for any variables. The lower RTD in OA versus controls was not explained by variation between groups in the fiber type admixture of the muscle, and was mitigated when RTD was normalized to peak torque (PT). In knee OA volunteers, we found strong correlations between the RTD expressed relative to PT and the velocity of contraction of single myosin heavy chain (MHC) I and IIA/X muscle fibers ($r = 0.652$ and 0.862 ; both $P < 0.05$) and power output of MHC I fibers ($r = 0.642$; $P < 0.05$). In controls, RTD relative to PT was related to fiber cross-sectional area of MHC IIA/X fibers ($r = 0.707$; $P < 0.05$), but not measures of single fiber contractile performance.

To our knowledge, these results represent the first demonstration that variation in whole muscle contractile kinetics in patients with advanced-stage knee osteoarthritis and healthy older adults is related, in part, to the size and function of single muscle fibers.

KEYWORDS: Single muscle fiber; Skinned fiber; Velocity

PMID: 26343257

3D MRI measurements

Eur Radiol. 2015 Oct;25(10):2960-8. doi: 10.1007/s00330-015-3710-7. Epub 2015 Mar 24.

Longitudinal change in quantitative meniscus measurements in knee osteoarthritis-data from the Osteoarthritis Initiative.

Bloeker K¹, Wirth W, Guermazi A, Hitzl W, Hunter DJ, Eckstein F.
Author information

Abstract

OBJECTIVE:

We aimed to apply 3D MRI-based measurement technology to studying 2-year change in quantitative measurements of meniscus size and position.

METHODS:

Forty-seven knees from the Osteoarthritis Initiative with medial radiographic joint space narrowing had baseline and 2-year follow-up MRIs. Quantitative measures were obtained from manual segmentation of the menisci and tibia using coronal DESSwe images. The standardized response mean (SRM = mean/SD change) was used as measure of sensitivity to longitudinal change.

RESULTS:

Medial tibial plateau coverage decreased from 34.8 % to 29.9 % (SRM -0.82; $p < 0.001$). Change in medial meniscus extrusion in a central image (SRM 0.18) and in the central five slices (SRM 0.22) did not reach significance, but change in extrusion across the entire meniscus (SRM 0.32; $p = 0.03$) and in the relative area of meniscus extrusion (SRM 0.56; $p < 0.001$) did. There was a reduction in medial meniscus volume (10 %; $p < 0.001$), width (7 %; $p < 0.001$), and height (2 %; $p = 0.08$); meniscus substance loss was strongest in the posterior (SRM -0.51; $p = 0.001$) and weakest in the anterior horn (SRM -0.15; $p = 0.31$).

CONCLUSION:

This pilot study reports, for the first time, longitudinal change in quantitative 3D meniscus measurements in knee osteoarthritis. It provides evidence of improved sensitivity to change of 3D measurements compared with single slice analysis.

KEY POINTS:

- First longitudinal MRI-based measurements of change of meniscus position and size.
- Quantitative longitudinal evaluation of meniscus change in knee osteoarthritis.
- Improved sensitivity to change of 3D measurements compared with single slice analysis.

PMID: 25801196

Muscle power vs strength

Arthritis Rheumatol. 2015 Aug 28. doi: 10.1002/art.39336.

Muscle power is an independent determinant of pain and quality of life in knee osteoarthritis.

Reid KF¹, Price LL², Harvey WF³, Driban JB³, Hau C¹, Fielding RA¹, Wang C³.

Author information

Abstract

OBJECTIVES:

We examined the relationships between lower extremity muscle strength, power and perceived disease severity in participants with knee osteoarthritis (OA). We hypothesized that dynamic leg extensor muscle power would be associated with pain and quality of life in knee OA.

METHODS:

We used baseline data from a randomized controlled trial in 190 participants with knee OA (age: 60.2 ± 10.4 yrs; BMI: 32.7 ± 7.2 kg/m²). Knee pain was measured using the Western Ontario and McMaster Osteoarthritis Index and health-related quality of life using the Short Form 36 (SF-36). One-repetition maximum (1RM) strength was assessed using the bilateral leg press and peak muscle power was measured during 5 maximum voluntary velocity repetitions at 40% and 70% of 1RM.

RESULTS:

In univariate analysis, greater muscle power was significantly associated with pain ($r = -0.17$, $P < 0.02$). It was also significantly and positively associated with SF-36 physical component scores (PCS) ($r = 0.16$, $P < 0.05$). After adjusting for multiple covariates, muscle power was a significant independent predictor of pain ($P \leq 0.05$) and PCS ($P \leq 0.04$). However, strength was not an independent determinant of pain or quality of life ($P \geq 0.06$).

CONCLUSIONS:

Muscle power is an independent determinant of pain and quality of life in knee OA. Compared to strength, muscle power may be a more clinically important measure of muscle function within this population. New trials to systematically examine the impact of muscle power training interventions on disease severity in knee OA are particularly warranted. This article is protected by copyright. All rights reserved.

KEYWORDS: Knee Osteoarthritis; Muscle Power; Pain; Quality of Life

PMID: 26315282

38 A. FOOT AND ANKLE**Syndesmotic injury impacts outcomes**

J Orthop Trauma. 2015 Sep;29(9):410-3. doi: 10.1097/BOT.0000000000000295.

Does Syndesmotic Injury Have a Negative Effect on Functional Outcome? A Multicenter Prospective Evaluation.

Litrenta J¹, Saper D, Tornetta P 3rd, Phieffer L, Jones CB, Mullis BH, Egol K, Collinge C, Leighton RK, Ertl W, Ricci WM, Teague D, Ertl JP.

Author information

Abstract

OBJECTIVE: To evaluate the effect of syndesmotic disruption on the functional outcomes of Weber B, SE4 ankle fractures treated operatively.

SETTING: Multicenter trauma hospitals.

PATIENTS: Data were prospectively gathered during a previous, multicenter randomized trial including 242 patients (136 women, 106 men) from 9 trauma centers with operatively treated Weber B SE4 ankle fractures. There were 81 patients (35%) with syndesmotic instability confirmed intraoperatively after fibula fixation.

INTERVENTION: Functional evaluations were performed postoperatively at 6, 12, 26, and 52 weeks. The presence of symptomatic hardware and peroneal tendon discomfort was evaluated with 9-12 months of follow-up.

MAIN OUTCOME MEASURES: Functional outcomes evaluated included Short Musculoskeletal Function Assessment (SMFA), Bother index, and American Orthopaedic Foot and Ankle Society (AOFAS) scores. The recovery curve of the 2 groups was analyzed using a mixed linear regression analysis for repeated measures and included gender and race in the model. Symptomatic hardware and peroneal tendon discomfort were compared between the 2 groups with a χ analysis.

RESULTS: The adjusted mean linear regression analyses demonstrated that patients without a syndesmotic injury had better functional outcomes for some outcome measures. SMFA scores at 12 weeks were statistically lower in patients without syndesmotic injury ($P = 0.02$), but not at other visits. AOFAS scores were significantly higher ($P = 0.0006$), and Bother index trended toward lower results ($P = 0.07$) in patients without syndesmotic injury at all time points. Isolated analyses (T-tests) at 1 year demonstrated a difference in the SMFA ($P = 0.04$) and Bother index ($P = 0.05$), but not the AOFAS ($P = 0.21$). Men consistently demonstrated better recovery than women for all outcomes, whereas race was not significant for any measure. Symptomatic hardware and peroneal tendon irritation was not statistically different between the groups.

CONCLUSIONS: The recovery curves after ankle fractures were different based on syndesmotic injury. However, the difference was at the limit of clinical significance. Syndesmotic injury has a slightly detrimental effect on outcomes of operatively treated Weber B SE4 fractures.

LEVEL OF EVIDENCE: Prognostic Level II. See Instructions for Authors for a complete description of levels of evidence.

PMID: 25635361

40. ANKLE SPRAINS AND INSTABILITY

Non elastic tape best at stabilizing

Effect of kinesiotaping, non-elastic taping and bracing on segmental foot kinematics during drop landing in healthy subjects and subjects with chronic ankle instability☆

B. Kuni J. Mussler E. Kalkum H. Schmitt S.I. Wolf

DOI: <http://dx.doi.org/10.1016/j.physio.2015.07.004>

Objective

To compare kinesiotape with non-elastic tape and a soft brace with respect to their effects on segmental foot kinematics during drop landing in patients with chronic ankle instability and healthy subjects.

Design

Controlled study with repeated measurements.

Setting

Three-dimensional motion analysis laboratory.

Participants Twenty participants with chronic ankle instability and 20 healthy subjects.

Interventions The subjects performed drop landings with 17 retroreflective markers on the foot and lower leg in four conditions: barefoot, with kinesiotape, with non-elastic tape and with a soft brace.

Main outcome measures Ranges of motion of foot segments using a foot measurement method.

Results

In participants with chronic ankle instability, midfoot movement in the frontal plane (inclination of the medial arch) was reduced significantly by non-elastic taping, but kinesiotaping and bracing had no effect. In healthy subjects, both non-elastic taping and bracing reduced that movement. In both groups, non-elastic taping and bracing reduced rearfoot excursion significantly, which indicates a stabilisation effect. No such effect was found with kinesiotaping. All three methods reduced maximum plantar flexion significantly.

Conclusions

Non-elastic taping stabilised the midfoot best in patients with chronic ankle instability, while kinesiotaping did not influence foot kinematics other than to stabilise the hindfoot in the sagittal plane.

Clinical Trial Registration Number ClinicalTrials.gov NCT01810471

Keywords: Foot kinematics, Chronic ankle instability, Tape, Soft brace, Kinesiotape, Jump landing

42. PLANTAR SURFACE

PRP as effective as cortisone for PF

Platelet rich plasma versus corticosteroid injection for plantar fasciitis: A comparative study

Kowshik Jain Philip N. Murphy

Highlights

- PRP is as effective as Steroid injection at achieving symptom relief at 3 and 6 months.
- PRP effect does not wear off with time.
- At 12 months, PRP is significantly more effective than Steroid.
- PRP is better and more durable than cortisone injection to treat plantar fasciitis.

Abstract**Introduction**

Intractable plantar fasciitis can be a difficult condition to treat. Early results of platelet rich plasma (PRP) injection have been promising. We compared PRP to traditional cortisone injection in the treatment of chronic cases of plantar fasciitis resistant to traditional nonoperative management. The aim of the study was to compare the efficacy of PRP to that of Steroid at 3, 6 and 12 months after injection.

Methods

60 heels with intractable plantar fasciitis who had failed conservative treatment were randomised to receive either PRP or Steroid injection. All patients were assessed with the Roles–Maudsley (RM) Score, Visual Analogue Score (VAS) for pain and the American Orthopaedic Foot and Ankle Society (AOFAS) score. Data was collected prospectively on the cohort, pre-treatment, at 3, 6 and 12 months post injection and the results were compared.

Results

Pre-injection, the two groups were well matched with no statistically significant difference. At 3 months, all three outcome scores had significantly improved from their pretreatment level in both groups. The scores in the Steroid arm were marginally better than in the PRP arm, but this difference was not statistically significant. At 6 months, there was no statistically significant difference between the two groups, though there was a trend for the PRP scores to become better than the Steroid scores. At 12 months, the RM, VAS and AOFAS scores in the PRP arm (1.9, 3.3 and 88.5) were significantly better than the Steroid arm (2.6, 5.3 and 75) with P values of .013, .028 and .033, respectively.

Conclusions

PRP is as effective as Steroid injection at achieving symptom relief at 3 and 6 months after injection, for the treatment of plantar fasciitis, but unlike Steroid, its effect does not wear off with time. At 12 months, PRP is significantly more effective than Steroid, making it better and more durable than cortisone injection.

Keywords: Steroid, Plantar, Fasciitis, PRP

45 A. MANUAL THERAPY LUMBAR & GENERAL**Mob and peripheral blood flow**

Man Ther. 2015 Aug 28. pii: S1356-689X(15)00170-8. doi: 10.1016/j.math.2015.08.008.

Effects of pressure applied during standardized spinal mobilizations on peripheral skin blood flow: A randomized cross-over study.

Zegarra-Parodi R¹, Pazdernik VK², Roustit M³, Park PY⁴, Degenhardt BF⁵.

Author information

Abstract

BACKGROUND:

Peripheral skin blood flow (SBF) changes during and after spinal mobilization (SM), evaluated with laser Doppler flowmetry, may document physiological responses associated with SM.

OBJECTIVES:

To document variations in SBF during and after application of an SM and evaluate influence of pressure on SBF by applying the same standardized SM with 3 different nonnoxious pressures.

DESIGN:

Cross-over design with 4 interventions on 4 different days: control (no touch) and 3 SMs applied rhythmically at 5%, 40%, or 80% of pain pressure threshold (sham SM, low-pressure SM, or high-pressure SM, respectively).

METHOD:

Thirty-two individuals participated. The inspiratory gasp (IG) test was our positive control of vasoconstriction through excitation of the skin sympathetic nervous activity (SSNA). Each session comprised 5 phases: (1) baseline at the end of a 20-min acclimatization, (2) IG test, (3) post-IG phase, (4) SM phase or no manual contact for control, and (5) post-SM phase. A Biopac MP36 system collected SBF data, and a Novel Pliance-X system recorded pressure data.

RESULTS/FINDINGS:

Equal and significant bilateral vasodilation occurred during application of unilateral sham SM, low-pressure SM, and high-pressure SM. Post-SM significant vasodilation persisted after high-pressure SM.

CONCLUSIONS:

The current study is the first to describe bilateral peripheral SBF changes occurring during and 5 min after application of standardized SMs. Our post-SM vasodilation suggests involvement of mechanisms other than the putative SSNA-excitatory mechanism proposed with skin conductance measurements. Persistence of post-SM vasodilation following only high-pressure SM suggests possible pressure-dependent mechanisms. However, further research is warranted to clarify our findings.

KEYWORDS: Dose-response effect; Peripheral skin blood flow; Randomized cross-over study; Spinal mobilization

PMID: 26343747

Manipulation vs. functional tech**Short-term effectiveness of spinal manipulative therapy versus functional technique in patients with chronic non-specific low back pain: a pragmatic randomized controlled trial.**

Adelaida María Castro-Sánchez, PT, PhD Inmaculada C. Lara-Palomo, PT Guillermo A. Matarán-Peñarrocha, MD, PhD César Fernández-de-las-Peñas, PT, PhD, DMSc
Manuel Saavedra-Hernández, PT, PhD Joshua Cleland, PT, PhD María Encarnación Aguilar-Ferrándiz, PT, PhD

Abstract

Background Context

Chronic low back pain is a prevalent condition associated with pain, disability, decreased quality of life and fear of movement. To date, no studies have compared the effectiveness of spinal manipulation and functional technique for the management of this population.

Purpose

To compare the effectiveness of spinal manipulation and functional technique on pain, disability, kinesiophobia and quality of life in patients with chronic low back pain.

Study Design / Setting

A single-blind pragmatic randomized controlled trial conducted in a university research clinic.

Patient Sample

Sixty-two patients (62% female, age: 45±7) with chronic low back pain.

Outcome Measures Data on disability (Roland-Morris Disability Questionnaire -RMQ, Oswestry Low Back Pain Disability Index -ODI), pain intensity (Numerical Pain Rate Scale -NPRS), fear of movement (Tampa Scale of Kinesiophobia -TSK), quality of life (SF-36 questionnaire), isometric resistance of abdominal muscles (McQuade test) and spinal mobility in flexion (finger-to-floor distance) were collected at baseline immediately after the intervention phase and at one month post intervention by an assessor blinded to group allocation of the patients.

Methods Patients were randomly assigned to the spinal manipulative therapy group or the functional technique group and received three once-weekly sessions. The study was supported by a 5000 dollar grant from a university institution. The authors declared no potential conflicts of interest.

Results In comparison to patients receiving functional technique, those receiving spinal manipulation experienced statistically, although not clinically, significant greater reductions in terms of RMQ (standardized mean difference in score changes between groups at post-treatment: 0.1; at one month: 0.1) and ODI (post-treatment: 2.9; at one month: 1.4). Linear longitudinal analysis showed a significant improvement in both groups over time for RMDQ (manipulative: $F=68.51$, $P<0.001$; functional: $F=28.58$, $P<0.001$) and ODI (manipulative: $F=104.66$, $P<0.001$; functional: $F=32.15$, $P=0.001$). However, significant treatment-by-time interactions were not detected for pain intensity ($P=0.488$), TSK ($P=0.552$), any domains of the SF-36 quality of life questionnaire ($P\leq 0.164$), McQuade Test ($P=0.512$), and finger-to-floor distance ($P=0.194$). Differences between and within groups were not clinically meaningful in any of the reported measures.

Conclusions In comparison to functional technique, spinal manipulative therapy showed greater reduction in disability in patients with chronic low back pain, but not in terms of pain, fear of movement, quality of life, isometric resistance of trunk flexors or spinal mobility. However, differences in disability were not clinically meaningful; therefore, spinal manipulative therapy did not result in any clinically important short-term benefits over functional technique therapy. In addition, as neither group met the threshold for minimum clinically important difference (MCID) following treatment, neither treatment resulted in a clinically meaningful benefit.

Key words: low back pain, manipulation, chronic pain, quality of life, randomized controlled trial

45 C. MANUAL THERAPY THORACIC

Prevalence of manipulation of T spine for neck pain is good

A knowledge translation programme to increase the utilization of thoracic spine mobilization and manipulation for patients with neck pain

Musculoskeletal Care, 09/11/2015 Karas S, et al.

The purpose of the present research was to evaluate the effects of a structured knowledge translation programme on the frequency of manual therapy techniques performed by physical therapists on patients with neck pain. Knowledge translation programmes are essential in ensuring clinical use of evidence-based practice. The programme results, although on a small scale and not statistically significant, showed a positive trend toward increased thoracic spine manual therapy use for neck pain.

48 A. STM

STM and shoulder

Phys Ther. 2015 May 28.

Effectiveness of Soft Tissue Massage for Nonspecific Shoulder Pain: Randomized Controlled Trial.

van den Dolder PA¹, Ferreira PH², Refshauge KM³.

Author information

Abstract

BACKGROUND: Soft tissue massage and exercise are commonly used to treat episodes of shoulder pain.

OBJECTIVE: The study objective was to compare the effects of soft tissue massage and exercise with those of exercise alone on pain, disability, and range of motion in people with nonspecific shoulder pain.

DESIGN: This was a randomized controlled trial.

SETTING: The study was conducted in public hospital physical therapy clinics in Sydney, New South Wales, Australia.

PARTICIPANTS: The study participants were 80 people with an average age of 62.6 years (SD=12.2) who were referred to physical therapists for treatment of nonspecific shoulder pain.

INTERVENTION: Participants were randomly assigned to either a group that received soft tissue massage around the shoulder and exercises (n=40) or a group that received exercise only (n=40) for 4 weeks.

MEASUREMENTS: The primary outcome was improvement in pain, as measured on a 100-mm visual analog scale, 1 week after the cessation of treatment. Secondary outcomes were disability and active flexion, abduction, and hand-behind-back range of motion. Measurements were obtained at baseline, 1 week after the cessation of treatment, and 12 weeks after the cessation of treatment.

RESULTS: The between-group difference in pain scores from the baseline to 12 weeks after the cessation of treatment demonstrated a small significant difference in favor of the group receiving exercise only (mean difference=14.7 mm). There were no significant differences between groups in any other variable.

LIMITATIONS: It was not possible to mask therapists or participants to group allocation. Diagnostic tests were not used on participants to determine specific shoulder pathology.

CONCLUSIONS: The addition of soft tissue massage to an exercise program for the shoulder conferred no additional benefit for improving pain, disability, or range of motion in people with nonspecific shoulder pain.

PMID: 26023217

48 C. MUSCLES**Adductor tear test**

Scand J Med Sci Sports. 2015 Aug 6. doi: 10.1111/sms.12529.

Resisted adduction in hip neutral is a superior provocation test to assess adductor longus pain: An experimental pain study.

Drew MK^{1,2}, Palsson TS³, Izumi M^{3,4}, Hirata RP³, Lovell G⁵, Chiarelli P¹, Osmotherly PG¹, Graven-Nielsen T³.

Author information

Abstract

The criterion of long-standing groin pain diagnoses in athletes usually relies on palpation and clinical tests. An experimental pain model was developed to examine the clinical tests under standardized conditions. Pain was induced by hypertonic saline injected into the proximal adductor longus (AL) tendon or rectus femoris (RF) tendon in 15 healthy male participants. Isotonic saline was injected contralaterally as a control. Pain intensity was assessed on a visual analog scale (VAS). Resisted hip adduction at three different angles and trunk flexion were completed before, during, and after injections. Pain provocation in the presence of experimental pain was recorded as a true positive compared with pain provocation in the non-pain conditions. Similar peak VAS scores were found after hypertonic saline injections into the AL and RF and both induced higher VAS scores than isotonic saline ($P < 0.01$). Adduction at 0° had the greatest positive likelihood ratio (+LR = 2.8, 95%CI: 1.09-7.32) with 45° (-LR = 0.0, 95%CI: 0.00-1.90) and 90° (-LR = 0.0, 95%CI: 0.00-0.94) having the lowest negative LR.

This study indicates that the 0° hip adduction test resisted at the ankles optimizes the diagnostic procedure without compromising diagnostic capacity to identify experimental groin pain. Validation in clinical populations is warranted.

KEYWORDS: Groin; athlete; diagnostic test; experimental pain; pain

50 A. MOTOR CONTROL**Proprioception and postural control**

JSR In Press

The Effects of Sex, Limb Dominance and Soccer Participation on Knee Proprioception and Dynamic Postural Control

Section: Original Research Report

Authors: Mutlu Cug 1, 2, Erik A. Wikstrom³, Bahman Golshaei⁴, and Sadettin Kirazci⁴

Abstract

Context: Both female participation in soccer and associated injuries has greatly increased in recent years. One such issue is the 2–9 times greater incidence of non-contact ACL injuries in females relative to males in comparable sports. Several factors such as limb dominance and sporting history have been proposed to play a role in ACL incidence rates between males and females. However, evidence about the effects of these factors and how they interact with sex is mixed and thus no consensus exists.

Objectives: To quantify the effects of sports participation, limb dominance and sex on dynamic postural control and knee joint proprioception.

Design: Cross-sectional study design. Setting: University Research

Laboratory. Participants: Seventy-three participants (male soccer players: 19, female soccer players: 17, sedentary males: 19, sedentary females: 18) volunteered to complete this study. Intervention(s): Joint position sense was tested using a reproduction of passive positioning protocol on a Biodex isokinetic dynamometer (30°, 45°, 60° from 90° of knee flexion). Three Star Excursion Balance Test directions were used to assess dynamic postural control.

Main Outcome Measure(s): Normalized reach distance (% of leg length) in the anterior, posteromedial, posterolateral direction on each leg quantified dynamic postural control. Average absolute error and constant error for both limbs quantified joint position sense.

Results: Posteromedial reach distance was significantly better in soccer players relative to sedentary individuals ($p=0.006$). Anterior reach distance was significantly better ($p=0.04$) in sedentary individuals than soccer players. No limb dominance or sex differences were identified for dynamic postural control and no differences in absolute or constant error scores were identified.

Conclusion: Sporting history has a direction specific impact on dynamic postural control. Sporting history, sex, and limb dominance do not influence knee joint proprioception when tested in an open kinetic chain using passive repositioning.

Keywords: Sex, SEBT, Limb Dominance

NMC training

JSR In Press

Sustained Improvements in Dynamic Balance and Landing Mechanics Following a 6-Week Neuromuscular Training Program in Collegiate Female Basketball Players

Section: Original Research Report

Authors: Kate R. Pfile¹, Phillip A. Gribble², Gretchen E. Buskirk³, Sara M. Meserth⁴, and Brian G. Pietrosimone⁵DOI: <http://dx.doi.org/10.1123/jsr.2014-0323>

Abstract

Context: Epidemiological data demonstrate the need for lower extremity injury prevention training. Neuromuscular control (NMC) programs are immediately effective at minimizing lower extremity injury risk and improving sport-related performance measures. Research investigating lasting effects following an injury prevention program is limited. Objective: determine whether dynamic balance, landing mechanics, and hamstring and quadriceps strength could be improved following a six-week NMC intervention and maintained for a season. Design: prospective case series.

Setting: controlled laboratory. Patients [or other participants]: Eleven Division I female basketball players (age=19.40±1.35 years, height=178.05±7.52 cm, mass=72.86±10.70 kg). Interventions: Subjects underwent testing at three time periods completing the star excursion balance test (SEBT), landing error scoring system (LESS), and isometric strength testing for the hamstrings and quadriceps muscles. Pretest and Posttest 1 occurred immediately before and after the intervention respectively and posttest 2 at the end of the competitive season, nine months after posttest 1. Subjects participated in 18, 30 minute plyometric and neuromuscular control training sessions over a six-week period.

Main Outcome Measures: the normalized star excursion balance test composite score, normalized peak isometric hamstrings:quadriceps ratio, and the landing error scoring system total score. Results: The mean composite reach significantly improved over time ($F_{2,10}=6.96$, $P=0.005$) where both posttest scores were significantly higher than pretest (70.41±4.08%) (Posttest 1 73.48±4.19%, $t_{10}=-3.11$, $P=0.011$) and posttest 2 (74.2±4.77%, $t_{10}=-3.78$, $P=.004$). LESS scores significantly improved over time ($F_{2,10}=6.29$, $P=0.009$). The pretest LESS score (7.30±3.40) was higher than posttest 1 (4.9±1.20, $t_{10}=2.71$, $P=.024$) and posttest 2 (5.44±1.83, $t_{10}=2.58$, $P=.030$). There were no statistically significant differences ($P>0.05$) over time for the H:Q ratio when averaging both legs ($F_{2,10}=0.83$, $P=0.45$).

Conclusions: A six-week NMC program improved landing mechanics and dynamic balance over a nine-month period in female basketball players. Neuromuscular control adaptations can be retained without an in-season maintenance program.

54. POSTURE**Bassist posture does not affect MS symptoms**

Eur J Pain. 2015 Sep 1. doi: 10.1002/ejp.740.

No association between posture and musculoskeletal complaints in a professional bassist sample.

Woldendorp KH¹, Boonstra AM¹, Tijtsma A¹, Arendzen JH², Reneman MF³.

Author information

Abstract

BACKGROUND:

Professional musicians receive little attention in pain medicine despite reports of high prevalence of musculoskeletal complaints. This study aims to investigate the association between work-related postures and musculoskeletal complaints of professional bass players.

METHOD:

Participants were 141 professional and professional student double bassists and bass guitarists. Data about self-reported functioning, general and mental health status, location and intensity of musculoskeletal complaints and psychosocial distress were collected online with self constructed and existing questionnaires. Logistic regression analyses were performed to analyse associations between work-related postural stress (including type of instrument and accompanying specific exposures) and physical complaints, adjusted for potential confounders.

RESULTS:

Logistic regression analyses revealed no association between complaints and the playing position of the left shoulder area in double bassists ($p = 0.30$), the right wrist area in the bass guitarists ($p = 0.70$), the right wrist area for the German versus French bowing style ($p = 0.59$).

CONCLUSION:

All three hypotheses were rejected. This study shows that in this sample of professional bass players' long-lasting exposures to postural stress were not associated with musculoskeletal complaints. This challenges a dominant model in pain medicine to focus on ergonomic postures.

PMID: 26332347

55. SCOLIOSIS**Transitional vertebrae**

Spine (Phila Pa 1976). 2015 Sep 1;40(17):E964-70. doi: 10.1097/BRS.0000000000000945.

The Clinical Importance of Lumbosacral Transitional Vertebra in Patients With Adolescent Idiopathic Scoliosis.

Lee CS¹, Ha JK, Kim DG, Hwang CJ, Lee DH, Cho JH.

Author information

Abstract

STUDY DESIGN:

Retrospective review of radiographs.

OBJECTIVE:

The objective of this study was to (1) determine the prevalence of lumbosacral transitional vertebra (LSTV) with computed tomography (CT) and (2) correlate LSTV presence with lumbar disc degeneration at each level by magnetic resonance imaging.

SUMMARY OF BACKGROUND DATA:

LSTV is a frequently observed abnormality. Although its prevalence in patients with adolescent idiopathic scoliosis (AIS) has been shown, no studies have yet examined the clinical importance of LSTV in patients with AIS.

METHODS:

This study included 385 consecutive patients who underwent surgery for AIS at a single center. Plain radiographs and CT scans were used to detect LSTV. Disc degeneration was analyzed at the L3-4, L4-5, and L5-S1 disc levels with magnetic resonance imaging. The difference in disc degeneration at each level by the presence of LSTV was also analyzed. The effect of lumbar curve type on the disc degeneration of each level was then determined. To minimize confounding factors, logistic regression analysis was performed.

RESULTS:

The overall prevalence of LSTV in patients with AIS confirmed by CT scans was 12.2% (47/385). The proportion of grade II or more disc degeneration at the L4-5 level was higher in the LSTV(+) group than in the LSTV(-) group (29.8% vs.19.2%) although it was not statistically significant (P = 0.093). Large lumbar curves showed a positive correlation with disc degeneration at the L5-S1 level (P = 0.022).

CONCLUSION:

The prevalence of LSTV in patients with AIS was 12.2%. A trend of early degeneration in L4-5 level discs was found in patients with AIS with LSTV although it was not statistically confirmed. Disc degeneration at the L5-S1 level is related to a large lumbar curve. If patients with AIS with large lumbar curves have LSTV, consideration should be given to stopping the distal fusion at L3 instead of L4.

LEVEL OF EVIDENCE:

4.

PMID: 25909352

56. ATHLETICS**Identifying athletic groin pain**

Br J Sports Med. 2015 Jun 30. pii: bjsports-2014-093715. doi: 10.1136/bjsports-2014-093715.

Athletic groin pain: a systematic review and meta-analysis of surgical versus physical therapy rehabilitation outcomes.

King E1, Ward J2, Small L3, Falvey E4, Franklyn-Miller A5.
Author information

Abstract**BACKGROUND:**

Athletic groin pain (AGP) is an encompassing term for the multitude of chronic conditions presenting as pain in the inguinal region. The purpose of this review was to compare the return to play rates (RTPrate) and return to play times (RTPtime) between surgical and rehabilitation interventions in the treatment of AGP.

METHODS:

A systematic review of English language peer review journals was carried out between 1980 to June 2013 using PubMed, Embase, CINHALL and Google Scholar searching for all papers relating to AGP (and its various pseudonyms) and all surgical and rehabilitative interventions which reported RTPrate and/or RTPtime. AGP literature has been subdivided by many eponymous diagnoses but anatomical diagnostic groupings of (1) abdominal wall, (2) adductor and (3) pubic related pain were used in this review. Meta-analysis was then carried out on the data to compare results between the surgical and rehabilitation groups.

RESULTS:

Fifty-six papers out of the 561 discovered in the initial search were included in the review with 3332 athletes included. Evidence was mostly level IV. Using the Black and Downs checklist we found poor study quality overall with a high risk of bias especially among surgical studies. The results showed comparable RTPrate between surgical and rehabilitative interventions within the three diagnostic groups. Rehabilitation had significantly quicker RTPtime for pubic related groin pain compared to surgery (10.5 weeks and 23.1 weeks respectively). The abdominal group had the fastest return of the three groups for the rehabilitation and surgery.

CONCLUSIONS:

The review suggested better outcomes with rehabilitation for pubic-related groin pain with no difference between the adductor and abdominal groups. The review highlighted the poor quality and risk of bias in the literature making accurate comparison difficult.

Published by the BMJ Publishing Group Limited. For permission to use (where not already granted under a licence) please go to <http://group.bmj.com/group/rights-licensing/permissions>.

KEYWORDS:

Exercise rehabilitation; Groin; Lower limb surgery; Physiotherapy

Impact of altitude

Med Sci Sports Exerc. 2015 Sep 3.

Quantitative Model of Sustained Physical Task Duration at Varying Altitudes.

Beidleman BA¹, Fulco CS, Buller MJ, Andrew SP, Staab JE, Muza SR.

Author information

Abstract

PURPOSE:

To develop a quantitative model that can be used prior to ascent to altitude (ALT) to predict how much longer a sustained physical task would take for unacclimatized individuals in the early hours of exposure.

METHODS:

Using multiple linear regression, we analyzed time-trial (TT) performance on 95 unacclimatized men (n=83) and women (n=12) at sea level (SL) and at an ALT ranging from 2500 to 4300 m. The TT was initiated within 4 h of ascent to ALT. Independent variables known before ascent were: altitude, age, height, weight, sex, SL peak oxygen uptake, SL task duration time, and BMI classification (normal weight vs. overweight). The dependent variable was the % increase in TT duration from SL to ALT.

RESULTS:

The most significant factor in the model was alt (P=0.0001), followed by BMI classification (p=0.0009) and the interaction between BMI classification and alt (p=0.003). The model is as follows: % increase in TT duration = [100 + e]. The % increase in TT duration in overweight individuals was 129% greater than for normal-weight individuals at 3000 m. However, as ALT increased beyond 3000 m, the disparity between groups decreased until 4050 m where the % increase in TT duration became greater for normal-weight individuals.

CONCLUSIONS:

This model provides the first quantitative estimates of the % increase in sustained physical task duration during initial exposure to a wide range of elevations. Because only two easily obtainable factors are required as inputs for the model (alt and BMI classification), this model can be used by many unacclimatized individuals to better plan their activities at altitude.

PMID: 26339725

57. GAIT**Changes in gait****Effects of hip abductor muscle fatigue on gait control and hip position sense in healthy older adults**

Mina Arvin, MSc Marco J.M. Hoozemans, PhD Bart J. Burger, MD, PhD Sietse M. Rispens, MSc Sabine M.P. Verschueren, PhD Jaap H. van Dieën, PhD Mirjam Pijnappels, PhD

DOI: <http://dx.doi.org/10.1016/j.gaitpost.2015.08.011>

Abstract

We experimentally investigated whether unilateral hip abductor muscle fatigue affected gait control and hip position sense in older adults. Hip abductor muscles were fatigued unilaterally in side-lying position in 17 healthy older adults (mean age 73.2 SD 7.7 years). Hip joint position sense was assessed by an active-active repositioning test while standing and was expressed as absolute and relative errors. Participants walked on a treadmill at their preferred walking speed, while 3D linear accelerations were collected by an inertial sensor at the lower back. Gait parameters, including step and stride time, local divergence exponents and harmonic ratio were quantified. In fatigued gait, stride time variability and step-to-step asymmetry in the frontal plane were significantly increased. Also a significantly slower mediolateral trunk movement in fatigued leg late stance towards the non-fatigued leg was observed. Despite these temporal and symmetry changes, gait stability in terms of the local divergence exponents was not affected by fatigue. Hip position sense was also affected by fatigue, as indicated by an increased relative error of 0.7 (SD 0.08) degrees towards abduction. In conclusion, negative effects of fatigue on gait variability, step-to-step symmetry, mediolateral trunk velocity control and hip position sense indicate the importance of hip abductor muscles for gait control.

Keywords:

Postural balance, Muscle strength, Proprioception, Gait disorders, Elderly, Accidental falls

58. RUNNING

Aging and running mechanics

The Relationships between Age and Running Biomechanics.

DeVita P, et al. Med Sci Sports Exerc. 2015.

[Show full citation](#)

Abstract

Running has high injury rates, especially among older runners. Most aging literature compares young vs old runners without accounting for the progression of biomechanics throughout the lifespan. We used age as a continuous variable to investigate the continuum of age-related gait adaptations in running along with determining the chronology and rate of these adaptations.

PURPOSE: Identify the relationships among age and selected running biomechanics throughout the range of 18 to 60 years.

METHODS: Experienced (n = 110), healthy runners (54% male) provided informed consent and ran at their training pace while motion and force data were captured. Kinematics, ground reaction forces (GRFs) and lower limb joint torques and powers were correlated with age using Pearson product-moment correlations and linear regression.

RESULTS: Running velocity was inversely related to age ($r = -0.27$, $p = 0.005$) due to decreased stride length ($r = -0.25$, $p = 0.008$) but not rate. Peak vertical GRF ($r = -0.23$, $p = 0.016$) and peak horizontal propulsive GRF decreased with age ($r = -0.38$, $p < 0.0001$). Peak ankle torque ($r = -0.32$, $p = 0.0007$), and peak negative ($r = 0.34$, $p = 0.0003$) and positive ($r = -0.37$, $p < 0.0001$) ankle power decreased with age. Age-based regression equations and per year reductions in all variables significantly related to age are reported.

CONCLUSIONS: Data support prior work showing lower GRFs, stride length and velocity in old runners. Results are novel in showing the rate of decline in running biomechanics on a per-year basis and that mechanical reductions at the ankle but not hip or knee were correlated with age confirming previous observation of biomechanical plasticity with age showing reduced ankle but not hip function in gait.

PMID: 26258853

59. PAIN**Disturbed sleep and more pain post surgically**

J Pain. 2015 Sep 2. pii: S1526-5900(15)00809-3. doi: 10.1016/j.jpain.2015.07.006.

Short-term sleep disturbance-induced stress does not affect basal pain perception, but does delay postsurgical pain recovery.

Wang PK¹, Cao J², Wang H³, Liang L⁴, Zhang J⁴, Lutz BM⁵, Shieh KR⁶, Bekker A⁴, Tao YX⁷.
Author information

Abstract

Chronic sleep disturbance-induced stress is known to increase basal pain sensitivity. However, most surgical patients frequently report short-term sleep disturbance/deprivation during pre- and post-operation periods and have normal pain perception pre-surgery. Whether this short-term sleep disturbance affects postsurgical pain is elusive. We here reported that pre- or post-exposure to rapid eye movement sleep disturbance (REMSD) 6 h daily for 3 consecutive days did not alter basal responses to mechanical, heat, and cold stimuli, but did delay recovery in incision-induced reductions in paw withdrawal threshold to mechanical stimulation and paw withdrawal latencies to heat and cold stimuli on the ipsilateral side of male or female rats. This short-term REMSD led to stress evidenced by an increase in swim immobility time, a decrease in sucrose consumption, and an elevation in the level of corticosterone in serum. Blocking this stress via intrathecal RU38486 or bilateral adrenalectomy abolished REMSD-caused delay in recovery of incision-induced reductions in behavioral responses to mechanical, heat, and cold stimuli. Moreover, this short-term REMSD produced significant reductions in the levels of mu opioid receptor and kappa opioid receptor, but not Kv1.2, in the ipsilateral L_{4/5} spinal cord and dorsal root ganglia on day 9 post-incision (but not post-sham surgery).

PERSPECTIVE:

Our findings show that short-term sleep disturbance either pre- or post-surgery does not alter basal pain perception, but does exacerbate postsurgical pain hypersensitivity. The latter may be related to the reductions of mu and kappa opioid receptors in spinal cord and dorsal root ganglia caused by REMSD plus incision. Prevention of short-term sleep disturbance may help the recovery of postsurgical pain in patients.

KEYWORDS: Short-term sleep disturbance; postoperative pain; stress; surgery

PMID: 26342649

Neuropathic pain diagnosis

Curr Opin Anaesthesiol. 2015 Oct;28(5):537-45. doi: 10.1097/ACO.0000000000000223.

Neuropathic pain assessment: update on laboratory diagnostic tools.

Mainka T¹, Maier C, Enax-Krumova EK.

Author information

Abstract

PURPOSE OF REVIEW:

The purpose of this review was to provide an update on the diagnostic tools for neuropathic pain for clinical practice.

RECENT FINDINGS:

The new definition of neuropathic pain by the International Association for the Study of Pain requires confirmation of a lesion or disease affecting the somatosensory system. In addition to traditional diagnostic procedures, for example, nerve conduction studies, skin biopsies depict morphological alteration and/or rarefaction of the small intraepidermal nerve fibers and were recently used to identify small fiber abnormalities, for example, in patients with fibromyalgia or sarcoidosis. Quantitative sensory testing assesses the somatosensory function including both peripheral and central pathways. A recent consensus statement discussed its diagnostic value. Corneal confocal microscopy is a noninvasive method enabling in-vivo assessment of the small nerve fibers in the cornea and also seems to identify patients at risk for developing diabetic neuropathy at an early stage and to reflect the improvement of neuropathy after treatment. Further promising methods are the microneurography and nociceptive evoked potentials; however, they are technically challenging and their diagnostic value for clinical practice has yet to be confirmed.

SUMMARY:

For diagnosing neuropathic pain, confirmation of a lesion or disease affecting the somatosensory system is needed. Better clinical phenotyping will hopefully enable individualized mechanism-based treatment of neuropathic pain.

PMID:26263122

Inadequacy of pain rating scales

Curr Opin Anaesthesiol. 2015 Oct;28(5):565-9. doi: 10.1097/ACO.0000000000000225.

Acute pain assessment tools: let us move beyond simple pain ratings.

Gordon DB¹.

Author information

Abstract

PURPOSE OF REVIEW:

This review highlights challenges and current trends in tools used to assess acute pain across the lifespan.

RECENT FINDINGS:

A plethora of similar assessment tools exist for acute pain, most focused on self-report of pain intensity. Attempts to improve the frequency and visibility of pain assessment by prompting pain as 'the fifth vital sign' resulted in unintended consequences, creating a pressing need for a conceptual shift to multidimensional assessment of acute pain.

SUMMARY:

Valid and pragmatic assessment of pain is essential for effective pain management. Unidimensional scales that capture self-reported pain intensity ratings undervalue to the complexity of the pain experience. Pain is a biopsychosocial experience and assessment is a complex social transaction and an exchange of the meaning of pain that demands a more comprehensive approach.

PMID:26237235

Empathy and pain expression

J Pain. 2015 Aug 27. pii: S1526-5900(15)00839-1. doi: 10.1016/j.jpain.2015.08.005.

The Communal Coping Model of Pain Catastrophizing in Daily Life: A Within-Couples Daily Diary Study.

Burns JW¹, Gerhart JI², Post KM³, Smith DA⁴, Porter LS⁵, Schuster E², Buvanendran A², Fras AM⁵, Keefe FJ⁵.

[Author information](#)

Abstract

The Communal Coping Model (CCM) characterizes pain catastrophizing as a coping tactic whereby pain expression elicits assistance and empathic responses from others. Married couples (N = 105 couples; one spouse with chronic low back pain) completed electronic daily diary assessments 5 times/day for 14 days. On these diaries, patients reported pain catastrophizing, pain, function, and perceived spouse support, criticism and hostility. Non-patient spouses reported on their support, criticism, and hostility directed toward patients, as well as their observations of patient pain and pain behaviors. Hierarchical linear modeling tested concurrent and lagged (3 hours later) relationships. Principal findings included: a) within-person increases in pain catastrophizing were positively associated with spouse reports of patient pain behavior in concurrent and lagged analyses; b) within-person increases in pain catastrophizing were positively associated with patient perceptions of spouse support, criticism, and hostility in concurrent analyses; c) within-person increases in pain catastrophizing were negatively associated with spouse reports of criticism and hostility in lagged analyses. Spouses reported patient behaviors that were tied to elevated pain catastrophizing, and spouses changed their behavior during and following elevated pain catastrophizing episodes. Pain catastrophizing may affect the interpersonal environment of patients and spouses in ways consistent with the CCM.

PERSPECTIVE:

Pain catastrophizing may represent a coping response by which individuals' pain expression leads to assistance or empathic responses from others. Results of the present study support this Communal Coping Model, which emphasizes interpersonal processes by which pain catastrophizing, pain, pain behavior and responses of significant others are intertwined.

KEYWORDS: Communal Coping Model; Pain catastrophizing; daily diary; spouse responses
PMID:26320945

CBT and chronic pain improves sleep

Pain Med. 2015 Sep 9. doi: 10.1111/pme.12903.

The Impact of a Cognitive Behavioral Pain Management Program on Sleep in Patients with Chronic Pain: Results of a Pilot Study.

Blake C¹, Cunningham J¹, Power CK², Horan S², Spencer O², Fullen BM¹.

Author information

Abstract

OBJECTIVE:

To determine the impact of a cognitive behavioral pain management program on sleep in patients with chronic pain.

DESIGN:

Prospective nonrandomized controlled pilot study with evaluations at baseline and 12 weeks
SETTING: Out-patient multidisciplinary cognitive behavioral pain management program in a university teaching hospital
SUBJECTS: Patients with chronic pain who fulfilled the criteria for participation in a cognitive behavioral pain management program.

METHODS:

Patients assigned to the intervention group (n = 24) completed a 4 week cognitive behavioral pain management program, and were compared with a waiting list control group (n = 22). Assessments for both groups occurred at baseline and two months post cognitive behavioral pain management program. Outcome measures included self-report (Pittsburgh Sleep Quality Index) and objective (actigraphy) sleep measures, pain and quality of life measures.

RESULTS:

Both groups were comparable at baseline, and all had sleep disturbance. The Pittsburgh Sleep Quality Index correlated with only two of the seven objective sleep measures (fragmentation index $r = 0.34$, $P = 0.02$, and sleep efficiency percentage $r = -0.31$, $P = 0.04$). There was a large treatment effect for cognitive behavioral pain management program group in mean number of wake bouts ($d = 0.76$), where a significant group*time interaction was also found ($P = 0.016$), showing that the CBT-PMP group improved significantly more than controls in this sleep variable
CONCLUSIONS: Patients attending a cognitive behavioral pain management program have high prevalence of sleep disturbance, and actigraphy technology was well tolerated by the patients. Preliminary analysis of the impact of a cognitive behavioral pain management program on sleep is promising, and warrants further investigation.

KEYWORDS: Cognitive Behavioral Therapy; Pain Management Program; Sleep

PMID: 26352702

Impact of pain in adolescents

Curr Pain Headache Rep. 2015 Nov;19(11):526. doi: 10.1007/s11916-015-0526-8.

The Biopsychosocialspiritual Impact of Chronic Pain, Chronic Illness, and Physical Disabilities in Adolescence.

Geraghty ME¹, Buse DC.
Author information

Abstract

The effects of chronic pain, chronic illness, and physical disability in adolescence are diverse, often influencing every facet of an adolescent's life. The biopsychosocialspiritual model provides a framework within which to conceptualize the experience of the adolescent with chronic pain and can be very helpful in guiding clinical care including creating comprehensive interdisciplinary treatment plans. Literature on chronic pain often focuses on pediatric or adult populations and does not lend information on how to provide evidence-based treatment for the adolescent in chronic pain.

The study of chronic pain in adolescence has been largely limited by small samples, cross-sectional and observational designs, and studies that intertwine findings with pediatric and adult populations. Herein, we review the literature on the biopsychosocialspiritual experience of the adolescent with chronic pain.

PMID:26351154

Psychosocial pain management

Psychosocial pain management moderation

The Journal of Pain, 09/08/2015

Day MA, et al. – This model provides a basis for specific a priori hypothesis generation, and a selection of the possible hypotheses drawn from the model are proposed and discussed. Future research considerations are presented that could refine and expand the model based on theoretically driven empirical evidence.

- This critical review summarizes research that addresses the latter question and proposes a moderation model to help guide future research.
- A theoretical moderation framework for matching individuals to a specific psychosocial pain intervention has been lacking.
- However, several such frameworks have been proposed in the broad psychotherapy and implementation science literature.
- Drawing on these theories and adapting them specifically for psychosocial pain treatment, here the authors propose a Limit, Activate, and Enhance model of pain treatment moderation.

61. FIBROMYALGIA**Increased risk of suicide in FM's with HA's**

Neurology. 2015 Aug 21. pii: 10.1212/WNL.0000000000001943.

Suicide risk in patients with migraine and comorbid fibromyalgia.

Liu HY¹, Fuh JL¹, Lin YY¹, Chen WT², Wang SJ².

Author information

Abstract

OBJECTIVES:

To identify the frequency, clinical effects, and suicide risk in comorbid fibromyalgia (FM) among patients with migraine.

METHODS:

We surveyed patients with migraine who attended a headache clinic. All patients completed questionnaires containing demographics, headache profiles based on the International Classification of Headache Disorders, 2nd edition, FM questionnaires based on the modified 2010 American College of Rheumatology preliminary diagnostic criteria, Migraine Disability Assessment, Hospital Anxiety and Depression Scale, and Pittsburgh Sleep Quality Index. Suicide risk was evaluated by self-report of lifetime suicidal ideation and attempts.

RESULTS:

Of the 1,318 recruited patients with migraine (aged 42.6 ± 12.7 years; female/male = 4.5), 10.1% (aged 44.3 ± 12.6 years; female/male = 7.9) had comorbidity of FM. Patients with migraine and comorbid FM had higher headache frequency and headache-related disability, poor sleep quality, and were more depressed/anxious than those with migraine only ($p < 0.001$). Suicidal ideation and attempts were reported in 27.3% and 6.9% of patients with migraine, respectively, and were higher in patients with comorbid FM than in those without (ideation: 58.3% vs 24%; attempt: 17.6% vs 5.7%; $p < 0.001$). In addition, comorbidity of FM was associated with a higher suicide risk in 3 different migraine subgroups, i.e., migraine without aura, migraine with aura, and chronic migraine. After controlling for covariates, comorbidity of FM remained as a predictor of suicidal ideation and attempts (odds ratio 2.61 and 1.99, respectively, $p < 0.05$) in patients with migraine.

CONCLUSIONS: Comorbidity with FM is associated with a high suicide risk in patients with migraine.

PMID:26296516

62 A. NUTRITION/VITAMINS**Omega 3's in inflammation**

PLoS One. 2015 Sep 4;10(9):e0137309. doi: 10.1371/journal.pone.0137309. eCollection 2015.

Dietary Omega-3 Fatty Acid Supplementation Reduces Inflammation in Obese Pregnant Women: A Randomized Double-Blind Controlled Clinical Trial.

Haghiac M¹, Yang XH¹, Presley L¹, Smith S¹, Dettelback S¹, Minium J¹, Belury MA², Catalano PM¹, Hauguel-de Mouzon S¹.

Author information

Abstract

OBJECTIVE:

Long-chain omega 3 fatty acids, eicosapentaenoic acid (EPA, 20:5n-3) and docosahexaenoic acid (DHA, 22:6n-3) exert potent anti-inflammatory properties in humans. This study characterized the effects of omega-3 ω -3 fatty acids supplements (ω -3 FA) on the inflammatory status in the placenta and adipose tissue of overweight/obese pregnant women.

STUDY DESIGN:

A randomized, double-masked controlled trial was conducted in overweight/obese pregnant women that were randomly assigned to receive DHA plus EPA (2g/day) or the equivalent of a placebo twice a day from week 10-16 to term. Inflammatory pathways were characterized in: 1) adipose tissue and placenta of treated vs. untreated women; and 2) adipose and trophoblast cells cultured with long chain FAs.

RESULTS:

The sum of plasma DHA and EPA increased by 5.8 fold and ω -3 FA/ ω -6 FA ratio was 1.5 in treated vs. untreated women ($p < 0.005$). Plasma CRP concentrations were reduced ($p < 0.001$). The adipose tissue and placenta of treated women exhibited a significant decrease in TLR4 adipose and placental expression as well as IL6, IL8, and TNF α . In vitro, EPA and DHA suppressed the activation of TLR4, IL6, IL8 induced by palmitate in culture of adipose and trophoblast cells.

CONCLUSION:

Supplementation of overweight/obese pregnant women with dietary ω -3 FAs for >25 weeks reduced inflammation in maternal adipose and the placental tissue. TLR4 appears as a central target of the anti-inflammatory effects at the cellular level.

TRIAL REGISTRATION: ClinicalTrials.gov NCT00957476.

PMID:26340264

IBS and celiac disease

Nutr J. 2015 Sep 7;14(1):92. doi: 10.1186/s12937-015-0080-6.

The relation between celiac disease, nonceliac gluten sensitivity and irritable bowel syndrome.

El-Salhy M^{1,2,3}, Hatlebakk JG^{4,5}, Gilja OH^{6,7,8}, Hausken T^{9,10,11}.

Author information

Abstract

Wheat products make a substantial contribution to the dietary intake of many people worldwide. Despite the many beneficial aspects of consuming wheat products, it is also responsible for several diseases such as celiac disease (CD), wheat allergy, and nonceliac gluten sensitivity (NCGS). CD and irritable bowel syndrome (IBS) patients have similar gastrointestinal symptoms, which can result in CD patients being misdiagnosed as having IBS. Therefore, CD should be excluded in IBS patients. A considerable proportion of CD patients suffer from IBS symptoms despite adherence to a gluten-free diet (GFD). The inflammation caused by gluten intake may not completely subside in some CD patients. It is not clear that gluten triggers the symptoms in NCGS, but there is compelling evidence that carbohydrates (fructans and galactans) in wheat does. It is likely that NCGS patients are a group of self-diagnosed IBS patients who self-treat by adhering to a GFD.

PMID: 26345589

BMI and Increased risk of Alzheimer's

Mol Psychiatry. 2015 Sep 1. doi: 10.1038/mp.2015.129.

Midlife adiposity predicts earlier onset of Alzheimer's dementia, neuropathology and presymptomatic cerebral amyloid accumulation.

Chuang YF^{1,2,3}, An Y⁴, Bilgel M^{4,5}, Wong DF^{6,7}, Troncoso JC⁸, O'Brien RJ⁹, Breitner JC¹⁰, Ferruci L⁴, Resnick SM⁴, Thambisetty M¹.

Author information

Abstract

Understanding how midlife risk factors influence age at onset (AAO) of Alzheimer's disease (AD) may provide clues to delay disease expression. Although midlife adiposity predicts increased incidence of AD, it is unclear whether it affects AAO and severity of Alzheimer's neuropathology. Using a prospective population-based cohort, Baltimore Longitudinal Study of Aging (BLSA), this study aims to examine the relationships between midlife body mass index (BMI) and (1) AAO of AD (2) severity of Alzheimer's neuropathology and (3) fibrillar brain amyloid deposition during aging. We analyzed data on 1394 cognitively normal individuals at baseline (8643 visits; average follow-up interval 13.9 years), among whom 142 participants developed incident AD. In two subsamples of BLSA, 191 participants underwent autopsy and neuropathological assessment, and 75 non-demented individuals underwent brain amyloid imaging. Midlife adiposity was derived from BMI data at 50 years of age. We find that each unit increase in midlife BMI predicts earlier onset of AD by 6.7 months ($P=0.013$). Higher midlife BMI was associated with greater Braak neurofibrillary but not CERAD (Consortium to Establish a Registry for Alzheimer's Disease) neuritic plaque scores at autopsy overall. Associations between midlife BMI and brain amyloid burden approached statistical significance.

Thus, higher midlife BMI was also associated with greater fibrillar amyloid measured by global mean cortical distribution volume ratio ($P=0.075$) and within the precuneus (left, $P=0.061$; right, $P=0.079$). In conclusion, midlife overweight predicts earlier onset of AD and greater burden of Alzheimer's neuropathology. A healthy BMI at midlife may delay the onset of AD. Molecular Psychiatry advance online publication, 1 September 2015; doi:10.1038/mp.2015.129.

PMID:26324099

Mediterranean diet and improved health**A Mediterranean diet and risk of myocardial infarction, heart failure and stroke: a population-based cohort study**

Atherosclerosis, 09/04/2015 Tektonidis TG, et al.

The aim was to examine a Mediterranean diet in relation to incidence of myocardial infarction (MI), HF and stroke types in a Swedish prospective cohort. Better adherence to a Mediterranean diet was associated with lower risk of MI, HF and ischemic stroke. The Mediterranean diet is most likely to be beneficial in primary prevention of all major types of atherosclerosis-related CVD.

Methods

- In a population-based cohort of 32,921 women, diet was assessed through a self-administered questionnaire.
- The modified Mediterranean diet (mMED) score was created based on high consumption of vegetables, fruits, legumes, nuts, whole grains, fermented dairies, fish and monounsaturated fat, moderate intakes of alcohol and low consumption of red meat, on a 0–8 scale.
- Relative risks (RR) with 95% confidence intervals (CI), adjusted for potential confounders, were estimated by Cox proportional hazards regression models.

Results

- During 10 y of follow-up (1998 to 2008), 1,109 MIs, 1,648 HF, 1,270 ischemic strokes and 262 total hemorrhagic strokes were ascertained.
- A high adherence to the mMED score (6–8), compared to low, was associated with a lower risk of MI (RR: 0.74, 95% CI: 0.61–0.90, $p=0.003$), HF (RR: 0.79, 95% CI: 0.68–0.93, $p=0.004$) and ischemic stroke (RR: 0.78, 95% CI: 0.65–0.93, $p=0.007$), but not hemorrhagic stroke (RR: 0.88, 95% CI: 0.61–1.29, $p=0.53$).

63. PHARMACOLOGY

Opioid use/ addiction

Exp Clin Psychopharmacol. 2015 Aug 24. [Epub ahead of print]

Pain Volatility and Prescription Opioid Addiction Treatment Outcomes in Patients With Chronic Pain.

Worley MJ, Heinzerling KG, Shoptaw S, Ling W.

Abstract

The combination of prescription opioid dependence and chronic pain is increasingly prevalent and hazardous to public health. Variability in pain may explain poor prescription opioid addiction treatment outcomes in persons with chronic pain. This study examined pain trajectories and pain volatility in patients with chronic pain receiving treatment for prescription opioid addiction. We conducted secondary analyses of adults with chronic pain ($n = 149$) who received buprenorphine/naloxone (BUP/NLX) and counseling for 12 weeks in an outpatient, multisite clinical trial. Good treatment outcome was defined as urine-verified abstinence from opioids at treatment endpoint (Week 12) and during at least 2 of the previous 3 weeks. Pain severity significantly declined over time during treatment ($b = -0.36$, $p < .001$). Patients with greater pain volatility were less likely to have a good treatment outcome (odds ratio = 0.55, $p < .05$), controlling for baseline pain severity and rate of change in pain over time. A 1 standard deviation increase in pain volatility was associated with a 44% reduction in the probability of endpoint abstinence. The significant reduction in subjective pain during treatment provides observational support for the analgesic effects of BUP/NLX in patients with chronic pain and opioid dependence. Patients with greater volatility in subjective pain during treatment have increased risk of returning to opioid use by the conclusion of an intensive treatment with BUP/NLX and counseling. Future research should examine underlying mechanisms of pain volatility and identify related therapeutic targets to optimize interventions for prescription opioid addiction and co-occurring chronic pain. (PsycINFO Database Record

PMID:26302337

Antibiotics link to type II diabetes

J Clin Endocrinol Metab. 2015 Aug 27;jc20152696.

Use of Antibiotics and Risk of Type 2 Diabetes: A Population-Based Case-Control Study.

Mikkelsen KH¹, Knop FK¹, Frost M¹, Hallas J¹, Pottegård A¹.

Author information

Abstract

CONTEXT AND OBJECTIVE:

Evidence that bacteria in the human gut may influence nutrient metabolism is accumulating. We investigated whether use of antibiotics influences the risk of developing type 2 diabetes and whether the effect can be attributed to specific types of antibiotics.

METHODS:

We conducted a population-based case-control study of incident type 2 diabetes cases in Denmark (population 5.6 million) between January 1, 2000, and December 31, 2012. Data from the Danish National Registry of Patients, the Danish National Prescription Registry, and the Danish Person Registry were combined.

RESULTS:

The odds ratio (OR) associating type 2 diabetes with exposure to antibiotics of any type was 1.53 (95% confidence interval 1.50-1.55) with redemption of more than or equal to 5 versus 0-1 prescriptions. Although no individual group of antibiotics was specifically associated with type 2 diabetes risk, slightly higher ORs for type 2 diabetes were seen with narrow-spectrum and bactericidal antibiotics (OR 1.55 and 1.48) compared to broad-spectrum and bacteriostatic types of antibiotics (OR 1.31 and 1.39), respectively. A clear dose-response effect was seen with increasing cumulative load of antibiotics. The increased use of antibiotics in patients with type 2 diabetes was found up to 15 years before diagnosis of type 2 diabetes as well as after the diagnosis.

CONCLUSIONS:

Our results could support the possibility that antibiotics exposure increases type 2 diabetes risk. However, the findings may also represent an increased demand for antibiotics from increased risk of infections in patients with yet-undiagnosed diabetes.

PMID:26312581