

2. LBP

MRI and LBP

Emerg Med J. 2017 May 2. pii: emermed-2016-206250. doi: 10.1136/emmermed-2016-206250.

Association of magnetic resonance imaging for back pain on seven-day return visit to the Emergency Department.

Aaronson EL^{1,2}, Yun B¹, Mort E^{2,3}, Brown D¹, Raja AS¹, Kaafarani HMA⁴, Chang Y³, Lee J^{1,4}.

Author information

Abstract

BACKGROUND:

The prevalence of back pain is rising, as is the use of high-cost imaging in the ED. The objective of our study was to determine if an MRI in the ED for patients with back pain resulted in a lower incidence of ED return visit and to determine if these patients had longer ED length of stay (LOS) and use of ED observation.

METHODS:

A retrospective cohort study of consecutive patients seen with back pain was conducted at an urban, university-affiliated ED between 1 January 2012 and 11 July 2014. The association of MRI on return within 7 days was assessed using a χ^2 test and a multivariable logistic regression model and the difference in median ED LOS was compared using a Wilcoxon rank-sum test.

RESULTS:

During the study period, 6094 patients were evaluated in the ED with back pain as the primary diagnosis. Of these, 797 (13%) received an MRI. Among all patients with back pain, 277 (4.5%) returned within 7 days. Univariate analysis found that patients who received an MRI were no less likely to return within 7 days than patients who did not (4.3% vs 4.6%; $p=0.68$). Patients who had an MRI were more likely to be admitted to observation (74.2% vs 10.8%; $p<0.0001$) and had a longer ED LOS (median 4.8 hours vs 2.7; $p<0.0001$). Multivariable regression confirmed that MRI did not decrease the rate of a 7-day return visit (OR=0.98; 95% CI 0.68 to 1.42).

CONCLUSIONS:

In patients with uncomplicated back pain, performing an MRI will not mitigate their likelihood of return; however, it leads to a longer ED LOS and more ED observation admissions.

DRG stim

Pain Pract. 2017 May 9. doi: 10.1111/papr.12591.

Stimulation of the L2-L3 Dorsal Root Ganglia Induces Effective Pain Relief in the Low Back.

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Abstract

INTRODUCTION:

Chronic low back pain affects millions of people worldwide and can arise through a variety of clinical origins. In the case of Failed Back Surgery Syndrome (FBSS), previous surgical procedures can contribute to low back pain that is often unresponsive to intervention. Although spinal cord stimulation can be an effective treatment modality, it does not provide sufficient pain relief for some intractable cases. Recently, alternative neuromodulation options have been developed, including dorsal root ganglion (DRG) stimulation. The objective of this report is to further investigate these clinical observations.

METHODS:

Twelve patients with significant chronic discogenic low back pain due to FBSS were included. All subjects were implanted with DRG stimulation systems that had at least one lead placed at L2 or L3. Subjects' pain ratings, mood, and quality of life was tracked prospectively for up to 12 months.

RESULTS:

More than half of subjects reported 50% or better pain relief in the low back, and the average low back pain relief was 45.5% at 12 months. Concomitant reductions in overall pain, leg pain, pain interference, mood, and quality of life were also found.

DISCUSSION:

For the studied population, DRG stimulation at the L2-L3 levels was effective at relieving low back pain. These reductions in pain were associated with improvements in quality of life. Thus, DRG stimulation at these levels may be effective for low back pain by recruiting both segmental and non-segmental neural pathways that are not otherwise accessible via traditional SCS. This article is protected by copyright. All rights reserved.

Neuromodulation in LBP

Neuromodulation. 2017 May 2. doi: 10.1111/ner.12603.

Effect of Multicolumn Lead Spinal Cord Stimulation on Low Back Pain in Failed Back Surgery Patients: A Three-Year Follow-Up.

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Author information

Abstract**OBJECTIVES:**

Spinal cord stimulation (SCS) remains poorly efficient at reducing back pain in failed back surgery syndrome (FBSS) patients. We aimed at determining whether a new multicolumn lead SCS technique was efficient at durably reducing their leg (LP) and back (BP) pain.

MATERIALS AND METHODS:

Sixty-two consecutive refractory FBSS patients received multicolumn SCS. Visual analogue scale (VAS) self-evaluation of BP, LP, and limitation of daily activity (LAD) were recorded preoperatively and at 2, 6, 12, 24, and 36 months after surgery. Quality of sleep and use of concomitant medications were also recorded.

RESULTS:

Complete datasets were obtained in 29 patients. BP (median VAS [25-75 centiles]) significantly decreased from 9 (8.5-10) preoperatively, to 3 (3-4) at short-term follow-up (2 months), and rose up to 5 (4-5) at 36 months. LP evolved from 7 (6-8) preoperatively, to 2.5 (2-3) at short-term follow-up, and 3 (2-3) at 36 months. Correspondingly, LAD VAS was 8 (8-9) preoperatively, and decreased to stable values of 3 (3-4) during the follow-up period. Quality of sleep also improved, with 72% of patients reporting poor sleep preoperatively to 0-7% in the follow-up period until 36 months. The percentages of patients regularly taking analgesic and/or co-analgesic medications decreased from 100% preoperatively to 8, 4, 12, 19, and 19%.

CONCLUSION:

Multicolumn lead SCS in FBSS patients significantly improve BP, LP, quality of life, and medication consumption for at least 36 months. A classical placebo effect cannot account for long-term improvements of such magnitude.

Muscle changers

Spine J. 2017 Apr 26. pii: S1529-9430(17)30182-1. doi: 10.1016/j.spinee.2017.04.025.

Lumbar muscle structure and function in chronic versus recurrent low back pain: a cross-sectional study.

Abstract

BACKGROUND CONTEXT: Heterogeneity exists within the low back pain population. Some patients recover after every pain episode, whereas others suffer daily from LBP complaints. Until now, studies rarely make a distinction between recurrent low back pain (RLBP) and chronic low back pain (CLBP), although both are characterized by a different clinical picture. Clinical experiences also indicate that heterogeneity exists within the CLBP population. Muscle degeneration, like atrophy, fat infiltration, alterations in muscle fiber type and altered muscle activity, compromises proper biomechanics and motion of the spinal units in low back pain (LBP) patients. The amount of alterations in muscle structure and muscle function of the paraspinal muscles, might be related to the recurrence or chronicity of LBP.

PURPOSE: The aim of this experimental study is to evaluate differences in muscle structure (cross-sectional area and lean muscle fat index) and muscle activity of the multifidus (MF) and erector spinae (ES) during trunk extension, in patients with RLBP, non-continuous CLBP and continuous CLBP.

STUDY DESIGN AND SETTING: This cross-sectional study took place in the University hospital of Ghent, Belgium. Muscle structure characteristics and muscle activity were assessed by magnetic resonance imaging (MRI).

PATIENT SAMPLE: Fifty five adults with non-specific low back pain (24 RLBP in remission, 15 non-continuous CLBP, 16 continuous CLBP) participated in this study.

OUTCOME MEASURES: Total cross-sectional area, muscle cross-sectional area, fat cross-sectional area, lean muscle fat index, T2-rest and T2-shift were assessed.

METHODS: A T1-weighted Dixon MRI scan was used to evaluate spinal muscle cross-sectional area and fat infiltration in the lumbar MF and ES. Muscle functional MRI was used to evaluate the muscle activity of the lumbar MF and ES during a lumbar extension exercise. Before and after the exercise, a pain assessment was performed. This study was supported by grants from the Special Research Fund of Ghent University (DEF12/AOP/022) without potential conflict of interest-associated biases in the text of the paper.

RESULTS: Fat cross-sectional area and lean muscle fat index was significantly higher in MF and ES in continuous CLBP compared to non-continuous CLBP and RLBP ($p < 0.05$). No differences between groups were found for total cross-sectional area and muscle cross-sectional area in MF or ES ($p > 0.05$). Also no significant differences between groups for T2-rest were established. T2-shift, however, was significantly lower in MF and ES in RLBP compared to respectively non-continuous CLBP and continuous CLBP ($p < 0.05$).

CONCLUSION: These results indicate a higher amount of fat infiltration in the lumbar muscles, in the absence of clear atrophy, in continuous CLBP compared to RLBP. A lower metabolic activity of the lumbar muscles was seen in RLBP replicating a relative lower intensity in contractions performed by the lumbar muscles in RLBP compared to non-continuous and continuous CLBP. In conclusion, RLBP differ from continuous CLBP for both muscle structure and muscle function, whereas non-continuous CLBP seem comparable with RLBP for lumbar muscle structure and with continuous CLBP for lumbar muscle function. These results underline the differences in muscle structure and muscle function between different LBP populations.

MRI lumbar pillow

Spine (Phila Pa 1976). 2017 May 1;42(9):662-669. doi: 10.1097/BRS.0000000000001889.

Conventional Supine MRI With a Lumbar Pillow-An Alternative to Weight-bearing MRI for Diagnosing Spinal Stenosis?: A Cross-sectional Study.

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Author information

Abstract

STUDY DESIGN:

Cross-sectional study.

OBJECTIVE:

To investigate if adding a lumbar pillow in supine position during magnetic resonance imaging (MRI) is superior to standing positional MRI for diagnosing lumbar spinal stenosis (LSS).

SUMMARY OF BACKGROUND DATA:

The upright standing position and especially extension of the lumbar spine seem to worsen symptoms of LSS. However, it is unclear whether a forced lumbar extension by a pillow in the lower back during conventional supine MRI may improve the diagnostics of LSS compared with standing MRI.

METHODS:

Patients suspected for LSS and referred to conventional MRI were included to an additional positional MRI scan (0.25T G-Scan) performed in: (1) conventional supine, (2) standing, (3) supine with a lumbar pillow in the lower back. LSS was evaluated for each position in consensus on a 0 to 3 semi-quantitative grading scale. Independently, L2-S1 lordosis angle, spinal cross-sectional diameter (SCSD), dural cross-sectional diameter (DCSD), and dural cross-sectional diameter (DCSA) were measured. The smallest dural diameter was defined as stenosis level and the largest control level for comparison.

RESULTS:

Twenty-seven patients (60.6 years; ± 9.4) were included. The lordosis angle increased significantly from supine to standing (3.2° CI: 1.2-5.2) and with the lumbar pillow (12.8° CI: 10.3-15.3). One-way analysis of variance (ANOVA) showed significant differences between positions ($P < 0.001$). When compared with the supine position, pairwise comparisons showed decreased SCSD, DCSD, DCSA, and increasing semi-quantitative grading, during both standing and supine with the lumbar pillow. A difference in the semi-quantitative grades was only found between standing and supine with a lumbar pillow, and the scan with a lumbar pillow was significantly more painful.

CONCLUSION:

Standing MRI and supine MRI with a lumbar pillow resulted in equal changes in the lumbar spine, although standing MRI may be more sensitive in the assessment of patients suspected for LSS.

PT referrals are stagnant

Spine (Phila Pa 1976). 2017 May 1;42(9):670-674. doi: 10.1097/BRS.0000000000001875.

Stagnant Physical Therapy Referral Rates Alongside Rising Opioid Prescription Rates in Patients With Low Back Pain in the United States 1997-2010.

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Author information

Abstract***STUDY DESIGN:***

A cross-sectional observational study utilizing the National Ambulatory and National Hospital Ambulatory Medical Care Surveys between 1997 and 2010.

OBJECTIVE:

The aim of this study was to characterize national physical therapy (PT) referral trends during primary care provider (PCP) visits in the United States.

SUMMARY OF BACKGROUND DATA:

Despite guidelines recommending PT for the initial management of low back pain (LBP), national PT referral rates remain low.

METHODS:

Race, ethnicity, age, payer type, and PT referral rates were collected for patients aged 16 to 90 years who were visiting their PCPs. Associations among demographic variables and PT referral were determined using logistic regression.

RESULTS:

Between 1997 and 2010, we estimated 170 million visits for LBP leading to 17.1 million PT referrals. Average proportion of PCP visits associated with PT referrals remained stable at about 10.1% [odds ratio (OR) 1.00, 95% confidence interval (95% CI) 0.96-1.04], despite our prior finding of increasing number of visits associated with opioid prescriptions in the same timeframe. Lower PT referral rates were observed among visits by patients who were insured by Medicaid (OR 0.48, 95% CI 0.33-0.69) and Medicare (OR 0.50, 95% CI 0.35-0.72). Furthermore, visits not associated with PT referrals were more likely to be associated with opioid prescriptions (OR 1.69, 95% CI 1.22-2.35).

CONCLUSION:

Although therapies delivered by PTs are promoted as a first-line treatment for LBP, PT referral rates remain low. There also exist disparately lower referral rates in populations with more restrictive health plans and simultaneous opioid prescription. Our findings provide a broad overview to PT prescription trend and isolate concerning associations requiring further explorations.

5. SURGERY

Deep seated L5

BMC Musculoskelet Disord. 2017 May 5;18(1):180. doi: 10.1186/s12891-017-1537-x.

Does a deep seated L5 vertebra position with respect to the iliac crests affect the accuracy of percutaneous pedicle screw placement at lumbosacral junction?

Guo J^{1,2}, Guo L¹, Gao J¹, Ling Q^{1,2}, Yin Z^{1,2}, He E^{3,4,5}.

Author information

Abstract

BACKGROUND:

Significant prominence of iliac crests with a deep seated L5 vertebra can potentially interfere with the screw trajectory when placing percutaneous pedicle screws (PPS) at the lumbosacral segment. The objective of this study was to investigate the influence of L5 position in relation to the iliac crests on the accuracy of percutaneous placement of lumbosacral pedicle screws.

METHODS:

From Oct 2012 to Sep 2014, 54 patients who underwent PPS placement at L5-S1 segment were recruited. Patients were divided into 2 groups: the L5-Seated Group (L5-S Group, n = 34) including patients with intercrest lines passing through the L4 vertebra or L4/5 intervertebral disc; whereas the L5-Non-Seated Group (L5-NS Group, n = 20) including patients with intercrest lines passing through the L5 vertebra. Postoperative computerized tomography was obtained in all patients, and PPS accuracy was evaluated by grading pedicle breach (Grade 0, no breach; Grade 1, ≤ 2 mm; Grade 2, > 2 mm without neurological compromise; Grade 3, with complications). Screw convergence angle (SCA), defined as the angle subtended by the screw axis and vertebral midline, was also recorded.

RESULTS:

In the L5-S Group, 82.4% (56/68) screws were measured as Grade 0 at L5, and 66.2% (45/68) were Grade 0 at S1; meanwhile, in the L5-NS Group, 77.5% (31/40) and 75.0% (30/40) screws were Grade 0 at L5 and S1, respectively. Misplacement rate was numerically higher at S1 in the L5-S Group ($P > 0.05$). There were significantly more medial pedicle violations at S1 in the L5-S Group as compared to the L5-NS Group (25.0% vs 7.5%, $P = 0.024$). No statistical difference was found in L5 SCA between the 2 groups (L5-S Group $23.7^\circ \pm 7.4^\circ$ vs L5-NS Group $23.4^\circ \pm 10.6^\circ$, $P = 0.945$); however, S1 SCA was significantly smaller in the L5-S Group ($14.7^\circ \pm 5.8^\circ$) when compared with the L5-NS Group ($20.8^\circ \pm 5.2^\circ$) ($P = 0.036$).

CONCLUSIONS:

A deep seated L5 vertebra with respect to the iliac crests might compromise the accuracy of PPS placement at S1 vertebra. Severe iliac prominence may interfere with the screw trajectory and limit the medial angulation of pedicle screw for percutaneous S1 fixation.

Spondylo surgery

Which is the optimum surgical strategy for spondylolisthesis: Reduction or fusion in situ? A meta-analysis from 12 comparative studies**Highlights**

- We had got more studies compared to the former “meta-analysis” or “system review” which we had searched.
- We tightened the eligible criteria compared to the former “meta-analysis” or “system review”.
- Subgroup analysis between “high grade” and “low grade” will make readers realize the outcomes clearly and directly.

Abstract**Purpose**

To compare the clinical outcomes and complications and radiographic outcomes of the two different surgical strategies (arthrodesis in situ and arthrodesis following reduction) for the surgical management of spondylolisthesis.

Methods

After systematic search the PubMed, Ovid MEDLINE, Cochrane, and Embase databases, comparative studies were selected according to eligibility criteria. Checklists by Furlan and by The Newcastle–Ottawa quality assessment scale (NOS scale) were used to evaluate the risk of bias of the included randomized clinical trials (RCTs) and nonrandomized controlled studies, respectively. The final strength of evidence was expressed as different levels recommended by the GRADE Working Group.

Results

Three RCTs and nine comparative observational studies were identified. Low-quality evidence indicated that reduction group (RG) was not more effective than fusion in situ group for clinical satisfaction (OR 0.77, 95% CI 0.39–1.54, $P = 0.46$), and neurologic complication rate (OR 0.89, 95% CI 0.38–2.03, $P = 0.78$). In secondary outcomes, Low-quality evidence indicated that RG improved fusion rate (OR 2.66, 95% CI 1.15–6.14, $P = 0.02$). There was no significant difference in the other complication rate (OR 0.89, 95% CI 0.44–1.79, $P = 0.63$) and blood loss (WMD 14.22, 95% CI -9.53–37.79, $P = 0.24$) between two groups. Statistical difference was found between the two groups with regard to slipping angle (WMD -6.33, 95% CI -12.60 to -0.06, $P = 0.05$).

Conclusions

There was no definite benefit of reduction over fusion in situ in clinical satisfaction rate and neurologic complication rate. The fusion rate significantly improved while the slipping angle considerably decreased postoperation in reduction group.

Comparisons of fusions

Spine (Phila Pa 1976). 2017 May 1;42(9):E515-E522. doi: 10.1097/BRS.0000000000001871.

Single-Level Lateral Lumbar Interbody Fusion for the Treatment of Adjacent Segment Disease: A Retrospective Two-Center Study.

Aichmair A¹, Alimi M, Hughes AP, Sama AA, Du JY, Härtl R, Burket JC, Lampe LP, Cammisa FP, Girardi FP.

Author information

Abstract**STUDY DESIGN:**

A retrospective case series.

OBJECTIVE:

The aim of this study was to assess the postoperative outcome after single-level lateral lumbar interbody fusion (LLIF) for adjacent segment disease (ASD).

SUMMARY OF BACKGROUND DATA:

Although there is a plethora of literature on ASD following traditional arthrodesis techniques, literature on ASD following LLIF is limited. Vice versa, the surgical outcome after LLIF for the treatment of ASD remains to be elucidated.

METHODS:

Patients who underwent single-level LLIF for ASD at two institutions (March 2006-April 2012) were included, and the medical records, operative reports, radiographic imaging studies, and office records reviewed.

RESULTS:

Out of 523 LLIF patients, 52 met the inclusion criteria, and were postoperatively followed for 16.1 ± 9.8 months (range: 5-44). When comparing the pre-operative data with both the first and most recent follow-up postoperatively, LLIF resulted in a reduction in back pain ($P < 0.001$, and $P < 0.001$, respectively) and leg pain ($P < 0.001$, and $P < 0.001$, respectively), increase in segmental lordosis ($P = 0.003$, and $P = 0.014$, respectively), decrease in segmental coronal angulation ($P < 0.001$, and $P = 0.003$, respectively), and increase in intervertebral height ($P < 0.001$, and $P < 0.001$, respectively) at the surgical level. The reoperation rate related to the LLIF procedure was 21.2% (11/52), which was performed after an average of 14.6 ± 10.1 months (range: 3.3-31.0). Eight out of 11 patients (72.7%) in the reoperation subgroup underwent standalone LLIF, whereas only 23 out of 41 patients (56.1%) without a reoperation underwent standalone LLIF ($P = 0.491$). There was a trend toward a higher fusion rate in patients who underwent circumferential fusion than the standalone subgroup (87.5% vs. 53.8%; $P = 0.173$).

CONCLUSION:

LLIF may be an effective surgical treatment option for ASD with regard to both the clinical and radiographic outcome in a large proportion of cases. Although standalone LLIF is associated with a narrower spectrum of adverse effects than circumferential fusion, posterior instrumentation may be necessary to increase segmental stability.

7. PELVIC ORGANS/WOMAN'S HEALTH

Smoking and infant fx risk

Bone. 2017 May 4. pii: S8756-3282(17)30164-3. doi: 10.1016/j.bone.2017.05.007.

Maternal smoking during pregnancy is associated with childhood bone fractures in offspring - A birth-cohort study of 6718 children.

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Author information

Abstract

In children there is limited understanding about the biological and environmental risk factors of fractures. Therefore, we aimed to study the effect of maternal smoking on preschool children's fractures hypothesizing that the fracture risk might be programmed during intrauterine growth in means of disturbed bone formation. A prospective birth cohort included women living in Northern Finland with an expected date of delivery between July 1st, 1985 and June 30th, 1986 (N=9362), and their offspring (N=9432). Smoking was inquired during pregnancy and when the offspring reached seven years of age. Information on in-hospital-treated fractures among the children was collected from the National Hospital Discharge Register (NHDR). The cases who declined to participate or suffered from any bone dysplasia such as osteogenesis imperfecta or any malignancy were excluded, thus 6718 subjects (71.2%) were finally included. Poisson regression analysis with adjustment for gender, asthma, rheumatoid arthritis, socioeconomic status of the family, maternal age and body mass index (BMI) of the children was used to determine the association between maternal smoking during pregnancy and bone fractures. Maternal smoking during pregnancy was associated with a 1.83-fold (95% CI 1.06-3.02, p=0.022) increased risk of in-hospital-treated fractures at pre-school age. The fracture risk in childhood is perhaps increased as a result of modified bone development of the fetus due to maternal smoking.

Pelvic pain

Pelvic Musculoskeletal dysfunctions in women with and without chronic pelvic pain

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Abstract

Aim

This study aimed to compare the prevalence of pelvic musculoskeletal dysfunctions in women with and without Chronic Pelvic Pain (CPP).

Materials &Methods

A total of 84 women with and without CPP (42 in each group), participated in this cross-sectional analytical study. After collecting demographic information, clinical examinations were carried out to compare pelvic musculoskeletal dysfunctions between two groups. Kolmogorov-Smirnov (K-S) goodness-of-fit, Independent t, X^2 and Pearson correlation tests were used for data analysis. Values of $p < 0.05$ were considered statistically significant.

Findings

Significant differences were found in the asymmetric iliac crest and pubic symphysis height (45.2% vs 9.5%), positive sacroiliac provocation and positive Carnett's tests (50% vs 4.8%), ($p < 0.05$). CPP Patients exhibited more tenderness at Levator ani, Piriformis, and Obturator Internus muscles, also higher degrees of pelvic inclination ($p < 0.05$).

Conclusion

Higher frequency of pelvic musculoskeletal dysfunctions in women with CPP suggests the value of routine musculoskeletal examinations for earlier diagnosis of musculoskeletal originated CPP and effective management of these patients.

8. VISCERA

Bladder cystitis

Clinical comparison of intravesical hyaluronic acid and chondroitin sulfate therapies in the treatment of bladder pain syndrome/interstitial cystitis

Neurourology and Urodynamics
Gülpinar O, et al.

The clinical efficacy of chondroitin sulfate (CS) was compared with hyaluronic acid (HA) in patients with bladder pain syndrome (BPS)/interstitial cystitis (IC). In investigations, the experts found intravesical CS superior to intravesical HA in terms of 24 h frequency, nocturia and interstitial cystitis problem index (ICPI) in patients with BPS/IC.

Methods

- For this study, patients were randomized to CS and HA groups.
- All patients were examined for visual analogue pain scale (VAS), interstitial cystitis symptom index (ICSI), interstitial cystitis problem index (ICPI), voiding diary for frequency/nocturia, and mean urine volume per void at the beginning of the therapy and after 6 months.
- Initially, all patients had a potassium sensitivity test (PST).
- For statistical analysis, Wilcoxon and Mann–Whitney U tests were used.

Results

- In both groups, there were 21 patients.
- Mean age of patients in CS and HA groups were 47.10 and 48.90, respectively ($P > 0.05$)
- In 64.3% of patients (27/42), before treatment, Parson's test was positive with no difference between groups.
- At both treatment arms, VAS of pain, ICSI, ICPI, frequency at 24 h and nocturia results have improved significantly.
- Intravesical CS was also found superior to intravesical HA in terms of 24 h frequency, nocturia and ICPI ($P < 0.05$).
- No severe adverse effects were observed.

13. CRANIUM/TMJ

Steroid us during preg.

J Obstet Gynaecol Res. 2017 Apr 19. doi: 10.1111/jog.13336.

Pregnancy outcomes in women with different doses of corticosteroid supplementation during labor and delivery.

Owa T¹, Mimura K¹, Kakigano A¹, Matsuzaki S¹, Kumasawa K¹, Endo M¹, Tomimatsu T¹, Kimura T¹.

Author information

Abstract

AIM:

The aim of this study was to report the pregnancy outcomes of women who received different doses of corticosteroid supplementation during labor and delivery.

METHODS:

We conducted a retrospective review of 102 pregnant women who received oral corticosteroid therapy, delivered at Osaka University Hospital, and were administered intravenous corticosteroid supplementation during labor and delivery. From January 2008 to May 2012, 47 women were administered a high dose of corticosteroids (HD group). From June 2012 to December 2016, 55 women were given a low dose of corticosteroids (LD group).

RESULTS:

There were no significant differences in the patient characteristics between the two groups. The most frequent disease was systemic lupus erythematosus (30/102; 29.4%). Most women used prednisolone for more than 1 year (91/102; 89.2%) and at a dose of more than 5 mg/day (88/102; 86.3%). The total intravenous dose of hydrocortisone during labor and delivery \pm standard deviation was 233.5 ± 129.4 mg (HD group) and 143.4 ± 38.1 mg (LD group), exhibiting a significantly larger dose in the HD group. No patients suffered an adrenal deficiency and there were no significant differences in the hemodynamics. There were three cases of puerperal endometritis, two patients with hyperglycemia, and one wound infection in the HD group, whereas one case of puerperal endometritis in the LD group. There were no significant differences in the neonatal outcomes.

CONCLUSION:

Pregnancy outcomes did not differ between the high and low doses of corticosteroid supplementation during labor and delivery.

Bruxism

J Oral Rehabil. 2017 May 6. doi: 10.1111/joor.12520.

Validity of different tools to assess sleep bruxism: a meta-analysis.

Casett E¹, Réus JC¹, Stuginski-Barbosa J², Porporatti AL³, Carra MC⁴, Peres MA⁵, De L Canto G⁶, Manfredini D⁷.

Author information

Abstract

This systematic review and meta-analysis (MA) aimed to evaluate the diagnostic validity of questionnaires, clinical assessment, and portable diagnostic devices compared to the reference standard method polysomnography (PSG) in assessing sleep bruxism (SB). Two reviewers searched electronic databases for diagnostic test accuracy studies that compared questionnaires, clinical assessment or portable diagnostic devices for SB, with the reference standard method PSG, comprising previous studies from all languages and with no restrictions regarding age, gender or time of publication. Of the 351 articles, eight met the inclusion criteria for qualitative, and seven for quantitative analysis. The methodology of selected studies was evaluated using the Quality Assessment Tool for Diagnostic Accuracy Studies (QUADAS-2). The studies were divided and analysed over three groups: three studies evaluating questionnaires, two regarding the clinical assessment of tooth wear, and three covering portable diagnostic devices. The MA indicated that portable diagnostic devices showed the best validity of all evaluated methods, especially as far as a four-channel EMG/ECG recording is concerned.

Questionnaires and the clinical assessment can be used as screening methods to identify SB individuals, although it is not that good in identifying subjects without SB. The quality of evidence identified through GRADEpro, was from very low to moderate, due to statistical heterogeneity between studies. This article is protected by copyright. All rights reserved.

14. HEADACHES

Migraines and blink reflex

Frequency-Dependent Habituation Deficit of the Nociceptive Blink Reflex in Aura With Migraine Headache. Can Migraine Aura Modulate Trigeminal Excitability?

Authors

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Headache: The Journal of Head and Face Pain

Objective

To study the influence of the migraine aura on the trigeminal nociception, we investigated the habituation of the nociceptive blink reflex (nBR) R2 responses in aura with migraine headache (AwMH) and comparatively in migraine without aura (MWoA) and healthy subjects (HS).

Background

A clear deficit of habituation in trigeminal nociceptive responses has been documented in MWoA; however, similar data in MWA are lacking.

Methods

Seventeen AwMH, 29 MWoA, and 30 HS were enrolled and a nonrandomized clinical neurophysiological study examining nBR habituation by clinical diagnosis was devised. We delivered a series of 26 electrical stimuli, at different stimulation frequencies (SF) (0.05, 0.1, 0.2, 0.3, 0.5, and 1 Hz), subsequently subdivided in five blocks of five responses for each SF. The mean area values of the second to the fifth block expressed as the percentage of the mean area value of the first block were taken as an index of habituation for each SF.

Results

A significant lower mean percentage decrease of the R2 area across all blocks was found at 1, 0.5, 0.3, and 0.2 Hz SF in MWoA and at 0.3 and 0.2 Hz SF in AwMH, when compared to HS. In the most representative fifth block of responses, we found in MWoA vs HS at 1 Hz, 57.0 ± 27.8 vs 30.6 ± 12.0 ; at 0.5 Hz, 54.8 ± 26.1 vs 32.51 ± 17.7 ; at 0.3 Hz, 44.7 ± 21.6 vs 27.6 ± 13.2 ; at 0.2 Hz, 61.3 ± 29.5 vs 32.6 ± 18.0 , and in AwMH vs HS at 0.3 Hz, 52.7 ± 24.7 vs 27.6 ± 13.2 ; at 0.2 Hz, 69.3 ± 38.6 vs 32.6 ± 18.0 as mean \pm SD of the R2 area percentage of the first block, respectively. Interestingly, AwMH subjects did not show differences in mean percentage decrease of the R2 area at 1 and 0.5 Hz SF when compared to HS. No differences between groups were found at 0.1 and 0.05 Hz SF.

Conclusions

We demonstrated in AwMH a deficit of habituation of the nBR R2 responses after repeated stimulations, although less pronounced than that observed in MWoA of comparable clinical severity. We hypothesize that AwMH and MWoA share some pathogenetic aspects, and also that migraine aura physiopathology may play a modulating role on the excitability of the nociceptive trigeminal pathways.

Direct current stim in Migraine

Transcranial direct current stimulation over the primary motor vs prefrontal cortex in refractory chronic migraine: A pilot randomized controlled trial

Journal of the Neurological Sciences

Andrade SM, et al.

Researchers performed this study to find out whether a treatment protocol involving 12 sessions of 2 mA, 20 min anodal stimulation of the left primary motor (M1) or dorsolateral prefrontal cortex (DLPFC) could offer clinical benefits in the management of pain from migraine. For treating chronic migraine, transcranial direct current stimulation is a safe and efficacious technique. Though, it ought to be kept in mind that the site of cortical stimulation might modulate the patient's response to treatment.

Methods

- The researchers evaluated 13 participants before and after treatment, using the Headache Impact Test-6, Visual Analogue Scale and Medical Outcomes Study 36 - Item Short - Form Health Survey.

Results

- Compared with groups M1 and sham, group DLPFC exhibited a better performance after treatment.
- Groups DLPFC and M1 showed a greater reduction in headache impact and pain intensity and a higher quality of life after treatment on intragroup comparison.
- In group sham, no significant change was found.
- Compared to the other two groups, the participants in group M1 demonstrated more adverse effects, particularly headache, heartburn, and sleepiness.

Cognitive function and HA's

J Affect Disord. 2017 Apr 21;218:1-7. doi: 10.1016/j.jad.2017.04.026.

Depression and anxiety among chronic pain patients receiving prescription opioids and medical marijuana.

Feingold D¹, Brill S², Goor-Aryeh I³, Delayahu Y⁴, Lev-Ran S⁵.
Author information

Abstract

BACKGROUND:

High rates of depression and anxiety have been consistently reported among patients suffering from chronic pain. Prescription opioids are one of the most common modalities for pharmacological treatment of pain, however in recent years medical marijuana(MM) has been increasingly used for pain control in the US and in several countries worldwide. The aim of this study was to compare levels of depression and anxiety among pain patients receiving prescription opioids and MM.

METHODS:

Participants were patients suffering from chronic pain treated with prescription opioids (OP,N=474), MM (N=329) or both (OPMM,N=77). Depression and anxiety were assessed using the depression module of the Patient Health Questionnaire (PHQ-9) and the Generalized Anxiety Disorder scale (GAD-7).

RESULTS:

Prevalence of depression among patients in the OP, MM and OPMM groups was 57.1%, 22.3% and 51.4%, respectively and rates of anxiety were 48.4%, 21.5% and 38.7%, respectively. After controlling for confounders, patients in the OP group were significantly more likely to screen positive for depression (Adjusted Odds Ratio(AOR)=6.18;95%CI=4.12-9.338) and anxiety(AOR=4.12;CI=3.84-5.71) compared to those in the MM group. Individuals in the OPMM group were more prone for depression (AOR for depression=3.34;CI=1.52-7.34) compared to those in the MM group.

LIMITATIONS:

Cross-sectional study, restricting inference of causality.

CONCLUSIONS:

Levels of depression and anxiety are higher among chronic pain patients receiving prescription opioids compared to those receiving MM. Findings should be taken into consideration when deciding on the most appropriate treatment modality for chronic pain, particularly among those at risk for depression and anxiety.

Duration and frequency of migraines affect cognitive function: Evidence from neuropsychological tests and event-related potentials

The Journal of Headache and Pain
Huang L, et al.

sponsor

Researchers performed this study to assess the changes in the cognitive performance of migraine patients using a comprehensive series of cognitive/behavioral and electrophysiological tests. During migraine, cognitive performance decreases, and cognitive dysfunction can be related to the duration and frequency of a migraine attack.

Methods

- The researchers used a randomized, cross-sectional, within subject approach to compare neuropsychological and electrophysiological evaluations from migraine-affected and healthy subjects.

Results

- The researchers included 34 patients with migraine (6 males, 28 females, average 36 years old).
- Compared to the healthy subjects, migraineurs performed worse in the majority of the Montreal Cognitive Assessment (MoCA) ($p = 0.007$), significantly in language ($p = 0.005$), memory ($p = 0.006$), executive functions ($p = 0.042$), calculation ($p = 0.018$) and orientation ($p = 0.012$).
- On the memory trial of the Rey–Osterrieth complex figure test (ROCF) ($p = 0.012$), migraineurs had a lower score.
- In migraineurs, the P3 latency in Fz, Cz, Pz was prolonged compared with the normal control group ($P < 0.001$).
- They also examined significant correlations between MoCA score and the duration of migraine.
- Also, they noted that a decrease in the MoCA-executive functions and calculation score and in the ROCF-recall score were both correlated to the frequency of migraine.
- Compared to healthy subjects, migraineurs were more anxious ($p = 0.001$), which is independent of cognitive testing.
- Differences were unrelated to age, gender and literacy.

24. ELBOW**PRP helps**

Year : 2017 | **Volume :** 51 | **Issue :** 3 | **Page :** 304-311

A comparative study to evaluate the efficacy of platelet-rich plasma and triamcinolone to treat tennis elbow

Abstract

Background: Lateral elbow pain is common with a population prevalence of 1%–3%. The study was a comparative trial to validate the efficacy of single injection of platelet-rich plasma (PRP) for tennis elbow as compared with single injections of triamcinolone and placebo (normal saline) over a short term period.

Materials and Methods: Comparative trial with 3- and 6-month followup evaluated with visual analog scale (VAS) and facial pain scale (FPS). Our study included a total of eighty patients with unilateral or bilateral tennis elbows. The study population included patients between 20 and 40 years age group belonging to either sex with seventy unilateral and ten bilateral affections for more than 3-month duration. Patients suffering from elbow pain due to other problems or those who have received any form of injection were excluded from the study. One milliliter of 2% Xylocaine injection was given before injecting the proposed formulation under trial. VAS and FPS were used for scoring pain. Kruskal–Wallis test and Mann–Whitney U-tests were used for statistical analyses at 12 and 24 weeks.

Results: Overall, 49 females and 31 males were included with thirty elbows in each group. Both the PRP and triamcinolone groups had better pain relief at 3 and 6 months as compared to normal saline group ($P < 0.05$), but at 6 months followup, the PRP group had statistically significant better pain relief than triamcinolone group. In the triamcinolone group, 13 patients had injection site hypopigmentation and 3 patients had subdermal atrophy.

Conclusion: Over a short term period, PRP gives better pain relief than triamcinolone or normal saline in tennis elbow which needs to be validated over long term period by further studies.

25. WRIST AND HAND

Risk of OA

Arthritis Rheumatol. 2017 May 4. doi: 10.1002/art.40097.

Lifetime Risk of Symptomatic Hand Osteoarthritis: The Johnston County Osteoarthritis Project.

Qin J^{1,2}, Barbour KE¹, Murphy LB¹, Nelson AE³, Schwartz TA³, Helmick CG¹, Allen KD³, Renner JB³, Baker NA⁴, Jordan JM³.

Author information

Abstract

OBJECTIVE:

Symptomatic hand osteoarthritis (SHOA) is a common condition that affects hand strength and function, and causes disability in activities of daily living. Prior studies have estimated lifetime risk for symptomatic knee and hip osteoarthritis to be 45% and 25% respectively. The objective of this study is to estimate overall lifetime risk for SHOA and stratified lifetime risk by potential risk factors.

METHODS:

We analyzed data for 2,218 adults ≥ 45 years in the Johnston County Osteoarthritis Project, a population-based prospective cohort study in residents of Johnston County, North Carolina. Data were collected in two cycles (1999-2004 and 2005-2010). SHOA was defined as having both self-reported symptoms and radiographic OA in the same hand. Lifetime risk, defined as the proportion of the population who will develop SHOA in at least one hand by age 85, was estimated from models using generalized estimating equations methodology.

RESULTS:

Overall, the lifetime risk of SHOA is 39.8% (95% confidence interval (CI): 34.4, 45.3). Nearly one in two women (47.2%; 95% CI: 40.6, 53.9) will develop SHOA by age 85 compared with one in four men (24.6%; 95% CI: 19.5, 30.5). Race-specific estimates are 41.4% (95% CI: 35.5, 47.6) among whites and 29.2% (95% CI: 20.5, 39.7) among blacks. Lifetime risk among individuals with obesity (47.1%, 95% CI: 37.8, 56.7) is 11 percentage point higher than those without obesity (36.1%, 95% CI: 29.7, 42.9).

CONCLUSION:

These findings demonstrate the substantial burden of SHOA overall and in subgroups. Increased use of public health and clinical interventions is needed to address its impact. This article is protected by copyright. All rights reserved.

32 A. KNEE/ACL**Technique for repair**

J Orthop Traumatol. 2017 May 8. doi: 10.1007/s10195-017-0458-7.

In-out versus out-in technique for ACL reconstruction: a prospective clinical and radiological comparison.

Monaco E¹, Fabbri M², Redler A², Iorio R², Conteduca J², Argento G², Ferretti A².

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

Several studies have recently shown better restoration of normal knee kinematics and improvement of rotator knee stability after reconstruction with higher femoral tunnel obliquity. The aim of this study is to evaluate tunnel obliquity, length, and posterior wall blowout in single-bundle anterior cruciate ligament (ACL) reconstruction, comparing the transtibial (TT) technique and the out-in (OI) technique.

MATERIALS AND METHODS:

Forty consecutive patients operated on for ACL reconstruction with hamstrings were randomly divided into two groups: group A underwent a TT technique, while group B underwent an OI technique. At mean follow-up of 10 months, clinical results and obliquity, length, and posterior wall blowout of femoral tunnels in sagittal and coronal planes using computed tomography (CT) scan were assessed.

RESULTS:

In sagittal plane, femoral tunnel obliquity was $38.6 \pm 10.2^\circ$ in group A and $36.6 \pm 11.8^\circ$ in group B ($p = 0.63$). In coronal plane, femoral tunnel obliquity was $57.8 \pm 5.8^\circ$ in group A and $35.8 \pm 8.2^\circ$ in group B ($p = 0.009$). Mean tunnel length was 40.3 ± 1.2 mm in group A and 32.9 ± 2.3 mm in group B ($p = 0.01$). No cases of posterior wall compromise were observed in any patient of either group. Clinical results were not significantly different between the two groups.

CONCLUSIONS:

The OI technique provides greater obliquity of the femoral tunnel in coronal plane, along with satisfactory length of the tunnel and lack of posterior wall compromise.

LEVEL OF EVIDENCE:

II, prospective study.

Dependence on visual clues

Arch Phys Med Rehabil. 2017 May 5. pii: S0003-9993(17)30302-7. doi: 10.1016/j.apmr.2017.04.010.

Visual Utilization During Postural Control in Anterior Cruciate Ligament Deficient & Reconstructed Patients: Systematic Reviews & Meta-Analyses.

Wikstrom EA¹, Song K², Pietrosimone BG², Blackburn JT², Padua DA².
Author information

Abstract

OBJECTIVE:

To determine if anterior cruciate ligament deficient (ACL-D) individuals and individuals with a reconstructed anterior cruciate ligament (ACL-R) rely more heavily on visual information to maintain postural control.

DATA SOURCES:

PubMed, CINAHL, and SPORTDiscus databases were searched from their earliest available date to May 24, 2016 using the combination of key words.

STUDY SELECTION:

Articles were included if they reported any instrumented static single leg balance outcome in both a patient and control sample. The means and standard deviations of these outcomes must have been reported with both eyes open and eyes closed.

DATA EXTRACTION:

Sample sizes, means, and standard deviations of single leg balance measures for each group's eyes open and eyes closed testing conditions were extracted. The methodological quality of included studies was independently evaluated by multiple authors using an adapted version of the quality index.

DATA SYNTHESIS:

Effect sizes were calculated by dividing the differences in change between eyes closed and eyes open in the ACL-D and control group and the ACL-R and control group by the pooled standard deviation from eyes closed trials for each analysis. Significant differences between the ACL-D and control group (Effect Size=-1.66, 95%CI= -2.90 to -0.41) was noted. The ACL-R and control group were not different (Effect Size=-0.61, 95%CI= -2.17 to 0.95) **CONCLUSIONS:** Individuals with an ACL-D but not individuals with ACL-R demonstrate a greater reliance on visual information during single leg stance compared to healthy individuals.

34. PATELLA

OA of Patella

Br J Sports Med. 2017 May;51(10):781-790. doi: 10.1136/bjsports-2016-096768. Epub 2016 Dec 7.

Is body mass index associated with patellofemoral pain and patellofemoral osteoarthritis? A systematic review and meta-regression and analysis.

Hart HF^{1,2}, Barton CJ², Khan KM¹, Riel H³, Crossley KM².

Author information

Abstract

BACKGROUND:

Patellofemoral pain (PFP) occurs frequently, and may be related to patellofemoral osteoarthritis (PFOA). Obesity is associated with increased risk of knee OA. This systematic review involves a meta-regression and analysis to determine the relationship between body mass index (BMI) and PFP and PFOA, and to determine the link between BMI and interventional outcomes.

METHODS:

We searched seven electronic databases and reference lists of relevant papers and systematic reviews, for cross-sectional, prospective, human-based observational and interventional studies reporting BMI in individuals with PFP or PFOA compared to healthy controls. Two independent reviewers appraised methodological quality (epidemiological appraisal instrument). Where possible, data from prospective studies were pooled to conduct meta-regression and case-control, and intervention studies to conduct meta-analysis using the following categories: adolescents with PFP, adults with PFP and PFOA.

RESULTS:

52 studies were included. We found greater BMI in adults with PFP (standardised mean difference: 0.24, 95% CI 0.12 to 0.36) and PFOA (0.73, 0.46 to 0.99) compared to healthy controls, but not in adolescents with PFP (-0.19, -0.56 to 0.18). We also observed statistical trends ($p < 0.10$) towards higher BMI being a predictor for development of PFP in adults (0.34, -0.04 to 0.71). No significant link between BMI and intervention outcomes in adults with PFP was identified.

CONCLUSIONS:

Higher BMI is present in PFP and PFOA, but not in adolescents with PFP.

PROSPERO REGISTRATION NUMBER:

CRD42015024812.

Lateral release does not help

Isolated arthroscopic lateral patella retinaculum release for anterior knee pain: Is it worth it?

British Journal of Medical Practitioners

Qasim SN, et al.

Researchers contemplated arthroscopic lateral patellar retinaculum release as a treatment modality for anterior knee pain. They found it effective for managing cases without significant instability or mal-alignment. It also improved patients' ability to kneel and climb stairs giving a high satisfaction score – grade of wear of patellofemoral cartilage being most important factor. Physiotherapy during post-operative period further amplified the benefits of this procedure. However, it displayed no significant value in the presence of advanced tibiofemoral degeneration irrespective of state of patellofemoral articulation.

37. OSTEOARTHRITIS/KNEE**Gene's impact**

Eur J Pain. 2017 May 11. doi: 10.1002/ejp.1027.

Pain in knee osteoarthritis is associated with variation in the neurokinin 1/substance P receptor (TACR1) gene.

Warner SC^{1,2}, Walsh DA^{1,3}, Laslett LL⁴, Maciewicz RA⁵, Soni A⁶, Hart DJ⁷, Zhang W^{1,3}, Muir KR⁸, Dennison EM⁹, Leaverton P¹⁰, Rampersaud E¹¹, Cooper C^{6,9}, Spector TD⁷, Cicuttini FM¹², Arden NK^{6,9}, Jones G⁴, Doherty M^{1,3}, Valdes AM^{1,3}.

Author information

Abstract

BACKGROUND:

Substance P (SP) is a pain- and inflammation-related neuropeptide which preferentially binds to the neurokinin receptor 1 (NK₁). SP and NK₁ receptors have been implicated in joint pain, inflammation and damage in animal models and human studies of osteoarthritis (OA). The aim of this study was to test if genetic variation at the neurokinin 1 receptor gene (TACR1) is associated with pain in individuals with radiographic knee OA.

METHODS:

Participants from the Genetics of OA and Lifestyle study were used for the discovery group (n = 1615). Genotype data for six SNPs selected to cover most variation in the TACR1 gene were used to test for an association with symptomatic OA. Replication analysis was performed using data from the Chingford 1000 Women Study, Hertfordshire Cohort Study, Tasmanian Older Adult Cohort Study and the Clearwater OA Study. In total, n = 1715 symptomatic OA and n = 735 asymptomatic OA individuals were analysed.

RESULTS:

Out of six SNPs tested in the TACR1 gene, one (rs11688000) showed a nominally significant association with a decreased risk of symptomatic OA in the discovery cohort. This was then replicated in four additional cohorts. After adjusting for age, gender, body mass index and radiographic severity, the G (minor) allele at rs11688000 was associated with a decreased risk of symptomatic OA compared to asymptomatic OA cases ($p = 9.90 \times 10^{-4}$, OR = 0.79 95% 0.68-0.90 after meta-analysis).

CONCLUSIONS:

This study supports a contribution from the TACR1 gene in human OA pain, supporting further investigation of this gene's function in OA.

SIGNIFICANCE:

This study contributes to the knowledge of the genetics of painful osteoarthritis, a condition which affects millions of individuals worldwide. Specifically, a contribution from the TACR1 gene to modulating pain sensitivity in osteoarthritis is suggested.

Injections

Arthritis Res Ther. 2017 May 8;19(1):88. doi: 10.1186/s13075-017-1292-2.

Structural predictors of response to intra-articular steroid injection in symptomatic knee osteoarthritis.

Maricar N^{1,2,3}, Parkes MJ^{1,2}, Callaghan MJ^{1,2,4}, Hutchinson CE⁵, Gait AD⁶, Hodgson R⁶, Felson DT^{1,2,7}, O'Neill TW^{8,9,10}.

Author information

Abstract

BACKGROUND:

The aim was to examine if structural factors could affect response to intra-articular steroid injections (IASI) in knee osteoarthritis (OA).

METHOD:

Persons with painful knee OA participated in an open-label trial of IASI where radiographic joint space narrowing (JSN) and Kellgren-Lawrence (KL) grade, whole-organ magnetic resonance imaging (MRI) scores (WORMS) and quantitative assessment of synovial tissue volume (STV) were assessed on baseline images. Participants completed the Knee Injury and Osteoarthritis Outcome Score (KOOS) and a question about knee pain with a visual analogue scale for pain during nominated activity (VAS_{NA}), and Outcome Measures in Rheumatology (OMERACT)-Osteoarthritis Research Society International (OARSI) criteria were used to assess responder status within 2 weeks (short term) and 6 months (longer term). Regression models were used to examine predictors of short and longer term response to IASI.

RESULTS:

Subjects (n = 207) attended and had IASI. Information on responder status was available on 199 participants. Of these, 188 subjects, mean age 63.2 years (standard deviation (SD) 10.3), 97 (51.6%) female, had x-rays and 120 had MRI scans available. Based on the OMERACT-OARSI criteria, 146 (73.4%) participants responded to therapy and 40 (20.1%) were longer term responders. A few factors were associated with a reduced KOOS-pain and VAS_{NA} response though none were associated with OMERACT-OARSI responder status in the short term. Higher MRI meniscal damage (odds ratio (OR) = 0.74; 95% CI 0.55 to 0.98), increasing KL maximal grade (OR = 0.43; 95% CI 0.23 to 0.82) and joint space narrowing (JSN) maximal score (OR = 0.60; 95% CI 0.36 to 0.99) were each associated with a lower odds of longer term responder status. Baseline synovitis was not associated with treatment response. The predicted probability of longer term response decreased from 38% to 12% as baseline maximal JSN increased from grade 0 to 3.

CONCLUSION:

Compared with those who have mild structural damage, persons with more severe knee damage on either MRI or x-ray are less likely to respond to knee IASI.

Enhancement factors

Int Orthop. 2017 May;41(5):983-989. doi: 10.1007/s00264-016-3370-5. Epub 2016 Dec 24.

Correlations between serum adipocytokine concentrations, disease stage, radiological status and total body fat content in the patients with primary knee osteoarthritis.

Richter M¹, Trzeciak T², Rybka JD^{3,4}, Suchorska W^{5,6}, Augustyniak E^{5,7}, Lach M^{5,7}, Kaczmarek M¹, Kaczmarczyk J¹.

Author information

Abstract

PURPOSE:

The study was designed to investigate whether serum concentrations of leptin, resistin and adiponectin in obese and normal-weight patients with primary knee osteoarthritis (OA) correlate with clinical and radiological stages of the disease and percentage of total body fat.

METHODS:

Seventy-three patients with knee OA, divided into obese and normal-weight groups, were clinically evaluated according to the Knee Society Score (KSS), and radiologically assessed using Kellgren and Lawrence scale. The percentage of total body fat and some anthropometric data were also given. Serum leptin, resistin and adiponectin concentrations were measured by Elisa and were correlated with the clinical, radiological and anthropometric parameters.

RESULTS:

Leptin concentrations were significantly higher ($p = 0.001$) in the obese patients and positively correlated ($R = 0.63$) with radiologically assessed OA grade, but only in the normal-weight group. Resistin and adiponectin concentrations were identical in obese and normal-weight patients and negatively correlated ($R = -0.41$) with the clinical status of obese patients. In both groups, percentage of total body fat positively correlated ($R = 0.29$ and $R = 0.53$ for obese and normal-weight respectively) with radiologically assessed OA grade. However, no correlations were found with clinical status of the patients.

CONCLUSIONS:

It was found that in the obese patients with knee OA, increased percentage of total body fat and elevated serum leptin concentration might favour the advancement of clinical but not radiologically assessed changes in the joint structures, while in normal-weight patients it correlates only with radiologically assessed changes but does not affect to an appreciable extent the clinical status of the patients.

52. EXERCISE

Reduces risk of fx

J Bone Miner Res. 2017 Apr 29. doi: 10.1002/jbmr.3161.

Leisure-time physical activity and risk of fracture: a cohort study of 66,940 men and women.Stattin K¹, Michaëlsson K¹, Larsson SC², Wolk A², Byberg L¹.

Author information

Abstract

Physical activity has been associated with reduced risk of fracture, but it is not known how the intensity or frequency of physical activity influences this risk reduction. We aim to compare the risk of hip fracture and fracture of any locale between men and women with different levels of leisure-time walking/bicycling and exercise. A total of 37,238 women (born 1914-1948) from the Swedish Mammography Cohort and 45,906 men (born 1918-1952) from the Cohort of Swedish Men were followed for a maximum of 17 years. Exposure and covariate information was collected through a self-administered questionnaire in 1997. Incident fractures (5,153 individuals with hip fracture and 15,043 with any type of fracture) and comorbidities were gathered from national and local patient registries. Hazard ratios (HRs) were calculated using Cox proportional hazards regression. Individuals who walked/bicycled less than 20 minutes per day had a lower rate of hip fracture (multivariable adjusted HR 0.77; 95% confidence interval [CI], 0.70 to 0.85) and any fracture (HR 0.87; 95% CI, 0.82 to 0.92), compared with those who hardly ever walked/bicycled. These reduced rates were also evident in both sexes, in different age categories, for vertebral fractures and for non-hip non-vertebral fractures. Those who reported exercise one hour per week had a lower rate of hip fracture (HR 0.87; 95% CI, 0.80 to 0.96) and any fracture (HR 0.94; 95% CI, 0.89 to 0.99) compared with those who exercised less than one hour per week. Only minor differences in HRs were observed in individuals with moderate compared to higher levels of walking/bicycling or exercise. Walking/bicycling and exercise showed almost equal reductions in rate of fracture when compared to those in a joint category with lowest activity.

In conclusion, both moderate and high self-reported frequency of physical activity is associated with reduced future risk of fracture. This article is protected by copyright. All rights reserved.

53. CORE**Pilates and rehab****Is Pilates an effective rehabilitation tool? A systematic review**

Keira Byrnes, Ping-Jung Wu, Stephney Whillier, PhD

DOI: <http://dx.doi.org/10.1016/j.jbmt.2017.04.008>

Abstract**Background**

Pilates is a system of exercise focusing upon controlled movement, stretching and breathing. Pilates is popular today not only for physical fitness but also for rehabilitation programs. This paper is a review of the literature on the effectiveness of Pilates as a rehabilitation tool in a wide range of conditions in an adult population.

Methods

A systematic literature review was carried out according to the PRISMA guidelines. Electronic databases were searched for cohort studies or randomised controlled trials (RCTs), and inclusion and exclusion criteria were applied. The final RCTs were assessed using the PEDro and CONSORT 2010 checklists.

Results

Twenty-three studies, published between 2005 and 2016, met the inclusion criteria. These papers assessed the efficacy of Pilates in the rehabilitation of low back pain, ankylosing spondylitis, multiple sclerosis, post-menopausal osteoporosis, non-structural scoliosis, hypertension and chronic neck pain. Nineteen papers found Pilates to be more effective than the control or comparator group at improving outcomes including pain and disability levels. When assessed using the CONSORT and PEDro scales, the quality of the papers varied, with more falling toward the upper end of the scale.

Conclusion

The majority of the clinical trials in the last five years into the use of Pilates as a rehabilitation tool have found it to be effective in achieving desired outcomes, particularly in the area of reducing pain and disability. It indicates the need for further research in these many areas, and especially into the benefits of particular Pilates exercises in the rehabilitation of specific conditions.

54. POSTURE

LBP changes in lordosis

MAY 09, 2017

The relationships between low back pain and lumbar lordosis: A systematic review and meta-analysis

The Spine Journal

Chun SW, et al.

The aim of this work was to conduct a systematic review and meta-analysis to determine the difference in lumbar lordotic curvature (LLC) in those with and without low back pain and to evaluate confounding factors that might affect the association between LLC and low back pain. Analysts observed a strong association between LBP and decreased LLC, especially when compared to age-matched healthy controls. Among specific diseases, low back pain by disc herniation or degeneration was shown to be substantially associated with the loss of LLC.

Methods

- They conducted a systematic electronic search of Medline, Embase, Cochrane library, CINAHL, Scopus, PEDro, and Web of Science using terms related with lumbar alignment and Boolean logic; (lumbar lordo*) or (lumbar alignment) or (sagittal alignment) or (sagittal balance).
- They calculated standardized mean differences (SMD) and 95% confidence intervals (CI) and chi-square and I2 statistics were used to assess within-group heterogeneity by random effect model.
- They assessed the age and gender of participants, spinal disease entity, and the severity and duration of low back pain as possible confounding factors.

Results

- They distinguished a sum of 13 studies consisting of 796 low back pain patients and 927 healthy controls.
- Compared to healthy controls, low back pain patients tended to have smaller lumbar lordotic angle.
- Nevertheless, the studies were heterogeneous.
- The meta-regression analysis demonstrated that the factors of age, severity of LBP, and spinal disease entity were revealed to contribute significantly to variance between studies.
- In the subgroup analysis of the five studies that compared patients with disc herniation or degeneration to healthy controls, low back pain patients had smaller lumbar lordotic angle (SMD: -0.94, 95% CI: -1.19 to -0.69) with sufficient homogeneity based on significance level 0.1 (I2 = 45.7%, p = 0.118).
- In the six age-matched studies, they found that low back patient patients had smaller lumbar lordotic angle, compared to healthy controls (SMD: -0.33, 95% CI: -0.46 to -0.21) without statistical heterogeneity (I2 = 0%, p = 0.916).

56. ATHLETICS**Tennis swing**

Med Sci Sports Exerc. 2017 Apr 19. doi: 10.1249/MSS.0000000000001303. [Epub ahead of print]

Technical Alterations during an Incremental Field Test in Elite Male Tennis Players.

Brechbuhl C¹, Girard O, Millet GP, Schmitt L.

[Author information](#)

[Abstract](#)

PURPOSE:

We investigated technical and physiological responses along with their relationships during an incremental field test to exhaustion specific to tennis (TEST) in elite players.

METHODS:

Twenty male elite tennis players completed TEST, which consisted of hitting alternatively forehand and backhand strokes at increasing ball frequency (ball machine) every minute. Ball accuracy (BA), ball velocity (BV) and tennis performance index (TP = BA x BV) were determined by radar and video analysis for each stroke, in addition to cardiorespiratory responses and blood lactate concentrations.

RESULTS:

At low intensities (below 80% of maximal oxygen uptake ($\dot{V}O_{2max}$)), technical performance was steady. From 80 to 100% of $\dot{V}O_{2max}$, significant and steady decreases in BV (-9.0% and -13.3%; $P = 0.02$ and $P = 0.002$), BA (-19.4% and -18.4%; both $P < 0.001$) and TP (-27.4% and -29.15%; both $P = 0.002$) occurred for forehands and backhands, respectively. Changes in TP and blood lactate concentration from 60 to 100% of $\dot{V}O_{2max}$ were inversely correlated ($r = -0.51$; $P = 0.008$). BV was 5.2% higher ($P = 0.042$) for forehand vs. backhand, and there was no difference between strokes for both BA ($P = 0.930$) and TP ($P = 0.536$).

CONCLUSION:

Technical alterations (i.e. decrease in BV, BA and TP) in elite players undergoing TEST only occurred at high intensity (>80% of $\dot{V}O_{2max}$), presumably due to the use of compensatory strategies to overcome fatigue. Above this intensity, all technical indices decreased steadily until exhaustion, independently of the stroke nature.

61. FIBROMYALGIA

FM and ex

Med Sci Sports Exerc. 2017 Apr 18. doi: 10.1249/MSS.0000000000001290.

The Effects of Exercise Training on Anxiety in Fibromyalgia Patients: A Meta-analysis.

McDowell CP¹, Cook DB, Herring MP.
Author information

Abstract

Physical inactivity and comorbid anxiety symptoms are prevalent among fibromyalgia (FM) patients. Exercise training may be an effective alternative therapy to reduce these symptoms.

PURPOSE:

To evaluate the effects of exercise training on anxiety symptoms in patients with FM, and to examine whether variables of theoretical or practical importance moderate the estimated mean effect.

METHODS:

Twenty-five effects were derived from 10 articles published before June 2016 located using Google Scholar, MEDLINE, PsycINFO, PubMed, and Web of Science. Trials involved 595 patients with FM (mean age: 47.6 years, 97.5% female) and included both randomization to exercise training (n=297) or a non-exercise control condition (n=298) and an anxiety outcome measured at baseline and during and/or after exercise training. Hedges' d effect sizes were computed, data for moderator variables were extracted, and random effects models were used to estimate sampling error and population variance for all analyses. Meta-regression quantified the extent to which patient and trial characteristics moderated the mean effect.

RESULTS:

Exercise training significantly reduced anxiety symptoms by a mean effect Δ of 0.28 (95%CI: 0.16-0.40). No significant heterogeneity was observed ($Q_{24}=30.79$; $p=0.16$; $I=25.29\%$). Program duration ($\beta=1.44$; $z=2.50$; $p\leq 0.01$) was significantly related to the overall effect, with significantly larger anxiety improvements resulting from programs lasting greater than 26 weeks ($\Delta=0.35$; 95%CI, 0.05-0.66) compared with those lasting less than 26 weeks ($\Delta=0.26$; 95%CI, 0.13-0.39).

CONCLUSION:

Exercise training improves anxiety symptoms among FM patients. The findings also suggest that larger anxiety symptom reductions will be achieved by focusing on longer exercise programs while promoting long-term adherence. Future well-designed investigations are required to examine the potential moderating effect of pain-related improvements in FM patients.

62 A. NUTRITION/VITAMINS**Vit D and menopause**

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Vitamin D and calcium intake and risk of early menopause.

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Abstract

Background: Early menopause, defined as the cessation of ovarian function before the age of 45 y, affects ~10% of women and is associated with higher risk of cardiovascular disease, osteoporosis, and other conditions. Few modifiable risk factors for early menopause have been identified, but emerging data suggest that high vitamin D intake may reduce risk. **Objective:** We evaluated how intakes of vitamin D and calcium are associated with the incidence of early menopause in the prospective Nurses' Health Study II (NHS2). **Design:** Intakes of vitamin D and calcium from foods and supplements were measured every 4 y with the use of a food-frequency questionnaire. Cases of incident early menopause were identified from all participants who were premenopausal at baseline in 1991; over 1.13 million person-years, 2041 women reported having natural menopause before the age of 45 y. We used Cox proportional hazards regression to evaluate relations between intakes of vitamin D and calcium and incident early menopause while accounting for potential confounding factors.

Results: After adjustment for age, smoking, and other factors, women with the highest intake of dietary vitamin D (quintile median: 528 IU/d) had a significant 17% lower risk of early menopause than women with the lowest intake [quintile median: 148 IU/d; HR: 0.83 (95% CI: 0.72, 0.95); *P*-trend = 0.03]. Dietary calcium intake in the highest quintile (median: 1246 mg/d) compared with the lowest (median: 556 mg/d) was associated with a borderline significantly lower risk of early menopause (HR: 0.87; 95% CI: 0.76, 1.00; *P*-trend = 0.03). Associations were stronger for vitamin D and calcium from dairy sources than from nondairy dietary sources, whereas high supplement use was not associated with lower risk.

Conclusions: Findings suggest that high intakes of dietary vitamin D and calcium may be modestly associated with a lower risk of early menopause. Further studies evaluating 25-hydroxyvitamin D concentrations, other dairy constituents, and early menopause are warranted.