

ABSTRACTS

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2. LBP

Alignment

Spine (Phila Pa 1976). 2016 Sep 15;41(18):E1081-7. doi: 10.1097/BRS.0000000000001568.

Association Between Lumbar Spine Sagittal Alignment and L4-L5 Disc Degeneration Among Asymptomatic Young Adults.

Menezes-Reis R¹, Bonugli GP, Dalto VF, da Silva Herrero CF, Defino HL, Nogueira-Barbosa MH.

Author information

Abstract

STUDY DESIGN:

Cross-sectional observational study on the relationship between the degrees of disc degeneration and sagittal alignment in asymptomatic healthy individuals.

OBJECTIVE:

This study sought to determine whether the sagittal spine alignment subtype is related to the prevalence of lumbar disc degeneration.

SUMMARY AND BACKGROUND DATA:

Sagittal balance and spinopelvic parameters might be risk factors for disc degeneration.

METHODS:

A total of 70 asymptomatic participants (36 women and 34 men) without regular physical activity were categorized according to the four subtypes of sagittal alignment proposed by Roussouly. All participants underwent magnetic resonance imaging of the lumbar spine (1.5T) and panoramic radiography of the spine. The degree of disc degeneration was graded using T2-weighted images according to the Pfirrmann classification. Spinopelvic parameters and vertebral curvatures were measured on digital panoramic radiographs using Surgimap software. Interobserver analyses for the Pfirrmann classification and spinopelvic parameters were assessed using the weighted Kappa and intraclass correlation coefficient (ICC), respectively.

RESULTS:

The Kappa associated with disc degeneration classification was 0.79 (95% confidence intervals 0.72-0.87). The ICCs were excellent, with small confidence intervals for all spinopelvic parameters. The type II group (flat lordosis) showed a higher frequency of degenerated discs at L4-L5 (P=0.03) than the type IV group (long and curved lumbar spine). No significant differences in disc degeneration were observed among the four subtypes at the other disc levels. We found a negative, moderate correlation between the spinopelvic parameters and the occurrence of disc degeneration in the type II group.

CONCLUSION:

The Roussouly subtype II sagittal alignment is significantly associated with disc degeneration at L4-L5 in asymptomatic young adults. Our results support the hypothesis that spinal sagittal alignment plays a role in early disc degeneration.

Lumbopelvic rhythm

BMC Musculoskelet Disord. 2016 Sep 22;17(1):403.

How consistent are lordosis, range of movement and lumbo-pelvic rhythm in people with and without back pain?

Laird RA^{1,2}, Kent P^{3,4}, Keating JL⁵.

Author information

Abstract

BACKGROUND:

Comparing movements/postures in people with and without lower back pain (LBP) may assist identifying LBP-specific dysfunction and its relationship to pain or activity limitation. This study compared the consistency in lumbo-pelvic posture and movement (range and pattern) in people with and without chronic LBP (>12 week's duration).

METHODS:

Wireless, wearable, inertial measurement units measured lumbar lordosis angle, range of movement (ROM) and lumbo-pelvic rhythm in adults (n = 63). Measurements were taken on three separate occasions: two tests on the same day with different raters and a third (intra-rater) test one to two weeks later. Participants performed five repetitions of tested postures or movements. Test data were captured automatically. Minimal detectable change scores (MDC₉₀) provided estimates of between-test consistency.

RESULTS:

There was no significant difference between participants with and without LBP for lordosis angle. There were significant differences for pelvic flexion ROM (LBP 60.8°, NoLBP 54.8°, $F(1,63) = 4.31, p = 0.04$), lumbar right lateral flexion ROM (LBP 22.2°, NoLBP 24.6° $F(1,63) = 4.48, p = .04$), trunk right lateral flexion ROM (LBP 28.4°, NoLBP 31.7°, $F(1,63) = 5.9, p = .02$) and lumbar contribution to lumbo-pelvic rhythm in the LBP group (LBP 45.8 %, $F(1,63) = 4.20, \text{NoLBP } 51.3 \% p = .044$). MDC₉₀ estimates for intra and inter-rater comparisons were 10°-15° for lumbar lordosis, and 5°-15° for most ROM. For lumbo-pelvic rhythm, we found 8-15 % variation in lumbar contribution to flexion and lateral flexion and 36-56 % variation in extension. Good to excellent agreement (reliability) was seen between raters (mean $r = .88$, ICC (2,2)).

CONCLUSION:

Comparisons of ROM between people with and without LBP showed few differences between groups, with reduced relative lumbar contribution to trunk flexion. There was no difference between groups for lordosis. Wide, within-group differences were seen for both groups for ROM and lordosis. Due to variability between test occasions, changes would need to exceed 10°-15° for lumbar lordosis, 5°-15° for ROM components, and 8-15 % of lumbar contribution to lumbo-pelvic rhythm, to have 90 % confidence that movements had actually changed. Lordosis, range of movement and lumbo-pelvic rhythm typically demonstrate variability between same-day and different-day tests. This variability needs to be considered when interpreting posture and movement changes.

Severity and choices

Severity of back pain may influence choice and order of practitioner consultations across conventional, allied and complementary health care: A cross-sectional study of 1851 mid-age Australian women

BMC Musculoskeletal Disorders, 09/26/2016 Sibbritt D, et al.

Authors demonstrated in the study that women with more severe back pain have more possibility to visit a conventional practitioner first, however women with less severe back pain tend to explore a range of treatment options including CAM practitioners. Betterment of back pain over time following the various possible sequencing of consultations with different types of health practitioners ensures safe and effective back pain care.

Methods

- In this sub-study of the large nationally representative Australian Longitudinal Study on Women's Health (ALSWH), authors enrolled mid-age cohort women (born 1946–51, n=13,715) of the ALSWH from the Australian national Medicare database in 1996.
- These women have been surveyed 6 times, with survey 6 being conducted in 2010 (n=10,011).
- Mid-age women (n=1851) who in 2010 had sought help from a health care practitioner for their back pain were mailed a self-report questionnaire targeting their previous 12 months of health services utilisation, health status and their levels of back pain intensity.

Results

- A total of 1620 women were deemed eligible and 1310 (80.9 %) returned completed questionnaires.
- Mid-age women with back pain visited various conventional, allied health and CAM practitioners for care: 75.6 % consulted a CAM practitioner; 58.4 % consulted a medical doctor; and 54.2 % consulted an allied health practitioner.
- Women with the most severe back pain sought conventional care from a general practitioner, and those who consulted a general practitioner first had more severe back pain than those who consulted another practitioner first.
- Following the general practitioner visit, the women with more severe back pain were more likely to be referred to a conventional specialist, and those with less severe back pain were more likely to be referred to a physiotherapist.

Factors for chronicity

The economic burden of guideline-recommended first line care for acute low back pain

European Spine Journal, 09/26/2016 Lin CWC, et al.

Study intended to address health care costs and the factors correlated with such costs in people with acute low back pain receiving guideline–recommended first line care. The results of this study displayed that, taking paracetamol as part of first line care for acute low back pain increased the economic burden. Higher disability, longer symptom duration and receiving compensation were independently associated with increased health care costs.

Methods

- This is a secondary analysis of a trial which found no difference in clinical outcomes.
- Participants with acute low back pain received reassurance and advice, and either paracetamol (taken regularly or as needed) or placebo for up to 4 weeks and followed up for 12 weeks.
- Evidence on health service utilisation were collected by self–report.
- A health sector perspective was adopted to report all direct costs incurred (in 2015 AUD, 1 AUD = 0.53 Euro).
- Costs were reported for the entire study cohort and for each group.
- Various baseline clinical, demographic, work–related and socioeconomic factors were investigated for their association with increased costs using generalised linear models.

Results

- The mean cost per participant was AUD167.74 (SD = 427.24) for the entire cohort (n = 1365).
- Most of these costs were incurred in primary care through visits to a general practitioner or physiotherapist.
- Correlated to the placebo group, there was an increase in cost when paracetamol was taken.
- This analysis indicated that disability, symptom duration and compensation were correlated with costs.
- Receiving compensation was correlated with a twofold increase compared to not receiving compensation.

4. INJECTIONS

Stenosis facet injections work

Facet joint injection versus epidural steroid injection for lumbar spinal stenosis: intra-individual study

E. Shim J.W. Lee E. Lee T. Im Y. Kang J.M. Ahn H.S. Kang

Highlights

- Epidural steroid injection (ESI) can rarely cause significant complications.
- Facet joint injection (FJI) showed effectiveness for lumbar radiculopathy in lumbar central canal stenosis.
- FJI can be an alternative option to ESIs in lumbar central canal stenosis.

Aim

To evaluate the efficacy of facet joint injection (FJI) for patients with lumbar central canal stenosis (LCS) in comparison with epidural steroid injection (ESI) in the same individuals.

Material and methods

Two hundred and fifty-two patients who underwent both FJI and ESI for LCS between January 2014 and December 2014 were considered for enrolment in the study. A radiologist retrospectively conducted a chart review and recorded which injection was chosen as the third injection after sequential injections of FJI and ESI, and why clinicians chose the particular injection method. The response was measured via the use of a five-point satisfaction scale.

Results

Among 252 patients, only 73 patients were included in the study (the remaining patients did not fulfil the inclusion criteria). Out of 73 patients (mean age, 69.7 years; range, 49~87 years), 50 patients had received a third injection, 33 patients (66%) underwent FJIs as a third injection. Out of 19 patients who had experienced an ineffective first ESI, 13 (68.4%) patients reported the second FJI as effective. Out of six patients for whom the first FJI had been ineffective, three (50%) patients reported the second ESI as effective.

Conclusion

FJIs can be administered as an alternative to ESIs in cases of LCS.

7. PELVIC ORGANS/WOMAN'S HEALTH

Breast-feeding and frenulum

Laryngoscope. 2016 Sep 19. doi: 10.1002/lary.26306.

Breastfeeding improvement following tongue-tie and lip-tie release: A prospective cohort study.

Ghaheri BA¹, Cole M², Fausel SC³, Chuop M³, Mace JC⁴.

Author information

Abstract

OBJECTIVES/HYPOTHESIS:

Numerous symptoms may arise that prevent mother-infant dyads from maintaining desired breastfeeding intervals. Investigations into treatments that positively influence breastfeeding outcomes allow for improved patient counseling for treatment decisions to optimize breastfeeding quality. This investigation aimed to determine the impact of surgical tongue-tie/lip-tie release on breastfeeding impairment.

STUDY DESIGN:

Prospective, cohort study from June 2014 to April 2015 in a private practice setting.

METHODS:

Study participants consisted of breastfeeding mother-infant (0-12 weeks of age) dyads with untreated ankyloglossia and/or tethered maxillary labial frenula who completed preoperative, 1 week, and 1 month postoperative surveys consisting of the Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF), visual analog scale (VAS) for nipple pain severity, and the revised Infant Gastroesophageal Reflux Questionnaire (I-GERQ-R). Breastmilk intake was measured preoperatively and 1 week postoperatively.

RESULTS:

A total of 237 dyads were enrolled after self-electing laser lingual frenotomy and/or maxillary labial frenectomy. Isolated posterior tongue-tie was identified in 78% of infants. Significant postoperative improvements were reported between mean preoperative scores compared to 1 week and 1 month scores of the BSES-SF ($F_{(2)} = 212.3$; $P < .001$), the I-GERQ-R ($F_{(2)} = 85.3$; $P < .001$), and VAS pain scale ($F_{(2)} = 259.8$; $P < .001$). Average breastmilk intake improved 155% from 3.0 (2.9) to 4.9 (4.5) mL/min ($P < .001$).

CONCLUSIONS:

Surgical release of tongue-tie/lip-tie results in significant improvement in breastfeeding outcomes. Improvements occur early (1 week postoperatively) and continue to improve through 1 month postoperatively. Improvements were demonstrated in both infants with classic anterior tongue-tie and less obvious posterior tongue-tie. This study identifies a previously under-recognized patient population that may benefit from surgical intervention if abnormal breastfeeding symptoms exist.

8. VISCERA

Appendectomy and increase risk of Parkinson's

Mov Disord. 2016 Sep 13. doi: 10.1002/mds.26761.

Appendectomy and risk of Parkinson's disease: A nationwide cohort study with more than 10 years of follow-up.

Svensson E¹, Horváth-Puhó E², Stokholm MG³, Sørensen HT^{2,4}, Henderson VW^{2,5,6}, Borghammer P³.

Author information

Abstract

OBJECTIVES:

The appendix may be a key site for the initiation of Parkinson's disease (PD) pathology. We examined the hypothesis that appendectomy is associated with lower PD risk.

METHODS:

We used Danish medical and administrative registries to construct a cohort of all patients in Denmark with an operation code of appendectomy during 1980-2010 (n = 265,758) and a matched general population comparison cohort (n = 1,328,790). Using Cox regression, we computed hazard ratios and corresponding 95% confidence intervals for PD, adjusting for potential confounders and stratifying on age at appendectomy (≤ 45 years / > 45 years), sex, and follow-up time.

RESULTS:

During follow-up (> 10 years), PD incidence was 0.19 and 0.15 per 1,000 person-years at risk in the appendectomy cohort and in the general population comparison cohort, respectively, yielding a slightly increased risk of PD (adjusted hazard ratio = 1.14; 95% confidence interval 1.03-1.27). Findings were consistent after more than 20 years of follow-up and when stratified on age of appendectomy and sex.

CONCLUSION:

Appendectomy was associated with a small increase in PD risk 10 or more years after surgery. © 2016 International Parkinson and Movement Disorder Society.

IBS helped by physical activity

Association between physical activity and inflammatory bowel disease risk: A meta-analysis

Digestive and Liver Diseases, 09/26/2016 Wang Q, et al.

This meta-analysis was designed to investigate an association between physical activity and inflammatory bowel disease risk. These findings affirmed that physical activity has a protective effect against Crohn's disease.

Methods

- The authors searched PubMed and Web of Science databases for relevant studies published up to October 2015.
- They extracted data and the summary relative risks (RRs) were calculated using a random effects or a fixed-effects model, as per heterogeneity.

Results

- In the analysis 7 studies were included.
- Relative to individuals with low physical activity, those who participated in high physical activity had an RR of 0.63 (95% CI, 0.50–0.79) for developing Crohn's disease.
- A significantly lower risk for Crohn's disease was associated with high physical activity in Europeans only (RR, 0.62; 95% CI, 0.43–0.91); population-based control studies (RR, 0.56; 95% CI, 0.41–0.76); and case-control studies (RR, 0.56; 95% CI, 0.41–0.75), in this stratified analyses.
- The authors pooled data of 6 studies to examine the effect of physical activity on the risk of ulcerative colitis, and found no significant association (RR, 0.82; 95% CI, 0.68–1.00).

10 A. CERVICAL SPINE

Emotions and neck pain

Factors associated with increased risk for pain catastrophizing in patients with chronic neck pain: A retrospective cross-sectional study

Medicine, 09/26/2016 Park SJ, et al.

The authors analyzed factors correlated with an increased risk for pain catastrophizing in chronic neck pain (CNP) patients. This retrospective cross-sectional study indicated that poor psychological states should be addressed as an important part of pain management in CNP patients who are susceptible to high pain catastrophizing.

Methods

- For this research, they collected data from the medical database on 331 patients who were treated for neck pain as their chief complaint at their clinic.
- They used the Pain Catastrophizing Scale (PCS) to define a high pain catastrophizing state (PCS score ≥ 21) in this study.
- Patient demographics, pain-related factors, and psychological factors were evaluated with logistic regression analysis to identify risk factors of high pain catastrophizing among patients with CNP.

Results

- A total of 256 patients with CNP satisfied the study inclusion criteria and were included in the analyses.
- It was found that the median PCS score was 16 (range, 0–45), and 86 of 256 patients (33.5%) reported a PCS score ≥ 21 .
- In multivariate analysis, high pain intensity, clinical insomnia, and a high level of depression/anxiety were strongly associated with high pain catastrophizing in patients with CNP.
- Depression was the strongest predictor of high pain catastrophizing, with an odds ratio of 7.35 (95% confidence interval 2.23–24.22).
- High pain catastrophizing was not significantly related to age, gender, comorbidities, or neck pain-related physical symptoms.

13. CRANIUM/TMJ

Maxillary expansion

Am J Orthod Dentofacial Orthop. 2016 Sep;150(3):521-32. doi: 10.1016/j.ajodo.2015.10.030.

A 22-year follow-up of the nonsurgical expansion of maxillary and mandibular arches in a young adult: Are the outcomes stable, relapsed, or unstable with aging?

Valladares-Neto J¹, Evangelista K², Miranda de Torres H², Melo Pithon M³, Alves Garcia Santos Silva M⁴.

Author information

Abstract

Adult maxillary and mandible arch expansion without a surgical approach can be uncertain when long-term stability is considered. This case report describes the treatment of a 19-year-old woman with an Angle Class I malocclusion with constricted maxillary and mandibular arches. The patient's main complaint was mandibular anterior crowding. The treatment plan included expansion of the mandibular arch concurrent with semirapid maxillary expansion. An edgewise appliance was used to adjust the final occlusion. Smile esthetics and dental alignment were improved without straightening the profile. This outcome was followed up with serial dental casts for 22 years after treatment. At the end of that period, the occlusion and tooth alignment were clinically satisfactory, further supported by mandibular fixed retention. However, the transverse widths were continuously and gradually reduced over time, superposing orthodontic transverse relapse and natural arch constriction caused by aging.

Lip closure training

J Oral Rehabil. 2016 Sep 21. doi: 10.1111/joor.12430.

Multidirectional lip-closing force in adult females after short-term lip training.

Fujiwara A¹, Tokura K¹, Tome W¹, Kitai N².

Author information

Abstract

The purpose of this study was to investigate the multidirectional lip-closing force in adult females before and after short-term lip training. Sixty-six Japanese females participated in this study. The subjects performed lip training that involved maintaining 200 or 400 g of bottled water in the oral vestibule. The signals of directional lip-closing force were investigated in eight directions before training and 5 and 7 days after the lip training. The differences in the closing force between pre- and post-training were then analysed statistically. The lip-closing force increased in the following order: pre-training, 5 days post-training and 7 days post-training in every direction ($P < 0.05$). The patterns of the increase in the lip-closing force in the upper, lower, right and left directions as a result of the repetitions were similar. No significant differences were noted between the training effects with loads of 200 and 400 g. Our findings demonstrated that the lip-closing force was influenced by the short-term lip training.

KEYWORDS: female adult; lip training; multidirectional lip-closing force; quantitative load; short-term

14. HEADACHES

Relaxation program decreases HA

Efficacy of a workplace relaxation exercise program on muscle tenderness in a working community with headache and neck pain: A longitudinal, controlled study

European Journal of Physical and Rehabilitation Medicine, 09/26/2016 Rota E, et al.

The clinicians performed a longitudinal, controlled study to analyze the impacts of a relaxation exercise programme on pericranial/cervical muscle tenderness in a working community with headache and neck pain. As per the outcomes, the administration of a workplace relaxation exercise intervention significantly decreased pericranial/cervical muscle tenderness in the working community, in association with head–neck pain benefit.

Methods

- The clinicians designed a controlled, non–randomized trial.
- The study was carried out in a working community, on the employees of the City of Turin’s central and peripheral registry and tax offices.
- They included a total of 384 workers and categorized into two groups: a study group (group 1; 192 subjects) and a control group (group 2; 192 subjects).
- A programme, with relaxation/posture exercises and a visual feedback, was carried out for Group 1 for 6 months and, afterwards, also for group 2 for the same follow–up period throughout.
- They collected data on head/neck pain.
- Standard palpation of pericranial and cervical muscles was done, scoring each patient for Pericranial Muscle Tenderness (PTS) (0–3), Cervical Muscle Tenderness (CTS) (0–3) and a Cumulative Muscle Tenderness (CUM) (0–6).

Results

- They found a significant difference between the groups: i.e. group 1 had an average change from baseline of –0.19 for PTS, –0.2 for CTS and –0.36 for the CUM score – in association with a reduction in headache, neck and shoulder pain.
- Moreover, the difference between the groups in PTS, CTS and CUM scores was no longer detectable at the end of the study, after also group 2 performed the programme.

33. MENISCUS**Meniscal root**

Arthroscopy. 2016 Sep 7. pii: S0749-8063(16)30405-4. doi: 10.1016/j.arthro.2016.06.030.

Does Release of the Superficial Medial Collateral Ligament Result in Clinically Harmful Effects After the Fixation of Medial Meniscus Posterior Root Tears?

Chung KS¹, Ha JK², Ra HJ³, Kim JG⁴.

Author information

Abstract

PURPOSE:

To investigate pain and tenderness, stress testing, clinical outcome scores, complications, and operation time at 24 months and magnetic resonance imaging (MRI) analysis at 12 months after the release of the distal attachment of the superficial medial collateral ligament (sMCL) during medial meniscus posterior root tear (MMPRT) fixation.

METHODS:

Patients who received MMPRT fixation with a follow-up of at least 2 years were included. During fixation, the release of the distal attachment of the sMCL on the proximal tibia was performed to improve visualization and provide sufficient working space. Pain and tenderness at the released area, manual valgus stress tests of 30° and 0° flexion (grade 0/1/2/3), and subjective instability during weight bearing were evaluated serially at postoperative 3, 6, 12, and 24+ months. The contour of detachment area was assessed using MRI 12 months postoperatively. As a subgroup analysis, tourniquet time (minutes) and final clinical scores were compared between release and nonrelease groups.

RESULTS:

The numbers of participants in the release and nonrelease groups were 118 and 20 patients, and their mean follow-up durations were 42.4 ± 19.3 (24-95) and 37.2 ± 7.8 (30-55) months, respectively. In the release group, percentages of patients with pain and tenderness at 3 months were 15% and 18%, respectively; however, no patients had symptoms at 12 months. In valgus stress tests (30°, 0°), 12% and 2% of patients showed grade 1 laxity at 3 months, and 7% had grade 1 laxity in only 30° flexion at the final follow-up. However, no patients had subjective valgus laxity. An intact contour was confirmed in all cases among 94 patients checked by performing follow-up MRI. Tourniquet time was significantly shorter in the release group (42.4 ± 19.3) than in the nonrelease group (58.5 ± 9.5; P < .001). Between release and nonrelease groups, Lysholm (84.4 ± 12.1, 88.1 ± 12.8; P = .117) and International Knee Documentation Committee scores (73.6 ± 11.2, 77.5 ± 11.9; P = .112) did not differ.

CONCLUSIONS:

The release of the distal attachment of the sMCL during fixation of MMPRT did not result in pain and tenderness, residual instability, and complication. An intact contour of the sMCL was confirmed in all cases with MRI. This procedure reduced operation time and showed similar clinical results when compared between the release and nonrelease groups. However, this study had low power to detect the difference for clinical scores between the 2 groups.

37. OSTEOARTHRITIS/KNEE**Instability**

Clin Rheumatol. 2016 Sep 17.

Predictors of self-reported knee instability among patients with knee osteoarthritis: results of the Amsterdam osteoarthritis cohort.

van der Esch M¹, van der Leeden M^{2,3,4}, Roorda LD², Lems WF^{5,6}, Dekker J^{3,4,7}.

Author information

Abstract

The aims of the study were to (i) determine the prevalence and course of self-reported knee instability at 2-year follow-up and (ii) identify factors predictive of retention of self-reported knee instability among patients with established knee osteoarthritis (OA). Among 201 patients from the Amsterdam Osteoarthritis (AMS-OA) cohort, demographic characteristics, self-reported knee instability, muscle strength, proprioception, pain, and physical function were assessed at baseline and at 2 years. Exercise over the past 2 years was assessed by evaluating the medical files. The course of self-reported knee instability was determined in patients reporting instability at baseline. Baseline predictors of self-reported knee instability were determined by uni- and multivariable logistic regression analyses. At baseline, 123 (61 %) patients reported knee instability, and of these, 85 (64 %) patients reported instability 2 years later, while 38 (29 %) reported no instability 2 years later.

Poor proprioception and high pain assessed at baseline predicted retention of self-reported knee instability at 2 years among patients with self-reported instability at baseline. Knee instability is highly prevalent among patients with knee osteoarthritis. In patients with self-reported knee instability, the majority retained instability over 2 years. Poor proprioception and high pain predicted retention of self-reported knee instability over time.

Steroid injections

Clin Rheumatol. 2016 Oct;35(10):2541-7. doi: 10.1007/s10067-016-3365-z. Epub 2016 Jul 30.

Predictors of response to intra-articular steroid injections in patients with osteoarthritis of the knee joint.

Fatimah N¹, Salim B^{2,3}, Raja EU⁴, Nasim A⁴.

Author information

Abstract

This study aimed to determine the factors associated with response to intra-articular steroid injection (IASI) in patients with knee joint osteoarthritis. One hundred seventy-four female patients, age ranging from 30 to 80 years, diagnosed to have osteoarthritis of the knee joint, were given IASI. Response to IASI was assessed by using WOMAC and VAS at 2 weeks, 4 weeks and 3 months. At 3 months, the subjects were categorized as responders, partial responders and non-responders to treatment by IASI. Various factors were narrowed down to see their effect on response, namely age, BMI, smoking habits, comorbidities, presence of clinical effusion, radiographic score, local knee tenderness, range of movement and socioeconomic status. One hundred twenty-four patients completed the study. 16.1 % showed 50 % or more improvement in WOMAC score at 3 months post IASI therapy, whereas 38.7 % of OA patients had more than 50 % improvement in VAS score. Out of all factors, range of movement, local knee tenderness and radiographic score of the affected joint are the three parameters which can predict the improvement in WOMAC score after 3 months of IASI therapy (P = 0.013, P = 0.045 and P = 0.000, respectively). Age of the patient can predict improvement in VAS at 3 months post IASI (P = 0.027). We conclude that age, range of movement, local knee tenderness and radiographic score of the affected joint can predict response to IASI after 3 months of IASI therapy.

Hyaluronic acid

Arthroscopy. 2016 Sep 7. pii: S0749-8063(16)30439-X. doi: 10.1016/j.arthro.2016.06.035.

Results of Hyaluronic Acid-Based Cell-Free Scaffold Application in Combination With Microfracture for the Treatment of Osteochondral Lesions of the Knee: 2-Year Comparative Study.

Sofu H¹, Kockara N², Oner A³, Camurcu Y², Issin A², Sahin V².

Author information

Abstract

PURPOSE:

To determine the clinical and radiographic efficacy of hyaluronic acid-based cell-free scaffold applied in combination with microfracture versus microfracture alone in patients with focal osteochondral lesion of the knee joint.

METHODS:

Clinical data of 43 patients between 24 and 55 years of age were evaluated. Hyaluronic acid-based cell-free scaffold was applied in combination with microfracture for 19 knees (group 1), whereas microfracture alone was the surgical intervention for 24 knees (group 2). All lesions were Outerbridge grade III or IV with a mean size of 3.6 ± 1.3 cm². The mean follow-up time was 25.7 months. Visual analog scale (VAS), Lysholm knee score, and Tegner activity scale were the instruments used to evaluate the clinical status. Magnetic resonance observation of cartilage repair tissue (MOCART) system was used to analyze the characteristics of repair tissue.

RESULTS:

Better VAS and Lysholm scores were detected in group 1 at 12 and 24 months ($P = .019$ and $P = .025$). According to the Tegner activity scale, group 1 had also better activity level at the end of 24 months after surgery ($P = .020$). The mean time from surgery to return to nonimpact sports activities was 7.8 months in group 1, whereas it was 9.2 months in group 2 ($P = .013$). Complete repair with the filling of the defect was achieved in 7 (36.8%) of the knees in group 1, whereas it was 4 (16.6%) of the knees in group 2 according to the MOCART system at 24 months.

CONCLUSIONS:

Single-stage regenerative cartilage surgery using hyaluronic acid-based cell-free scaffold in combination with microfracture for focal osteochondral lesions of the knee revealed promising clinical outcomes at 24 months of follow-up, but the clinical significance of the differences seen is simply not known.

LEVEL OF EVIDENCE:

Level III, retrospective comparative study.

Changes in OA

Nat Rev Rheumatol. 2016 Sep 22. doi: 10.1038/nrrheum.2016.148.

Changes in the osteochondral unit during osteoarthritis: structure, function and cartilage-bone crosstalk.

Goldring SR¹, Goldring MB¹.

Author information

Abstract

In diarthrodial joints, the articular cartilage, calcified cartilage, and subchondral cortical and trabecular bone form a biocomposite - referred to as the osteochondral unit - that is uniquely adapted to the transfer of load. During the evolution of the osteoarthritic process the compositions, functional properties, and structures of these tissues undergo marked alterations. Although pathological processes might selectively target a single joint tissue, ultimately all of the components of the osteochondral unit will be affected because of their intimate association, and thus the biological and physical crosstalk among them is of great importance. The development of targeted therapies against the osteoarthritic processes in cartilage or bone will, therefore, require an understanding of the state of these joint tissues at the time of the intervention. Importantly, these interventions will not be successful unless they are applied at the early stages of disease before considerable structural and functional alterations occur in the osteochondral unit.

This Review describes the changes that occur in bone and cartilage during the osteoarthritic process, and highlights strategies for how this knowledge could be applied to develop new therapeutic interventions for osteoarthritis.

PMID: [27652499](#)

Tai Chi

The Effect of Tai Chi exercises on postural stability and control in elder patients with knee osteoarthritis

Journal of Bodywork & Movement Therapies , 09/26/2016Ghandali E, et al.

For this study, researchers decide the balance measures in elder patients with knee OA after Tai Chi exercises. Considering the impacts of Tai Chi on mean velocity of CoP, it may be inferred that motor control and postural stability improvements have occurred. In this way, in light of these outcomes, Tai Chi exercises could be suggested for elder patients with knee OA as part of their rehabilitation and physical therapy protocols.

48 A. STM**Role of fascia in pain**

Pain. 2016 Oct;157(10):2309-17. doi: 10.1097/j.pain.0000000000000649.

Electrical high-frequency stimulation of the human thoracolumbar fascia evokes long-term potentiation-like pain amplification.

Schilder A¹, Magerl W, Hoheisel U, Klein T, Treede RD.

Author information**Abstract**

Nociceptive long-term potentiation, a use dependent increase in synaptic efficacy in the dorsal horn of the spinal cord is thought to contribute to the development of persistent pain states. So far, no study has analyzed the effects of high-frequency stimulation (HFS) of afferents from deep tissues (muscle and fascia) on pain perception in the back in humans. In 16 healthy volunteers, the multifidus muscle and the overlying thoracolumbar fascia were stimulated with electrical high-frequency pulses (5×100 pulses at 100 Hz) through bipolar concentric needle electrodes placed at lumbar level (L3/L4). Electrical pain thresholds were lower ($P < 0.001$) and pain ratings were higher for fascia compared with muscle stimulation ($P < 0.05$). For both tissues, pain ratings increased significantly across the five 100 Hz trains (from 15 to 22 numerical rating scale for fascia, from 8 to 12 numerical rating scale for muscle; both $P < 0.01$). Fascia HFS increased fascia pain ratings 2.17 times compared with the unconditioned control site ($P < 0.001$), but had no significant effect on pain sensitivity of the muscle. The HFS in muscle had no significant effect on muscle pain, but decreased pain sensitivity of the overlying fascia by 20% ($P < 0.05$). In additional experiments using the same electrodes and followed over >60 minutes post-HFS, potentiation by fascia HFS was similar to that of skin HFS.

These findings show that the spinal input from the fascia can induce long-term changes in pain sensitivity for at least 60 minutes making it a candidate potentially contributing to nonspecific low back pain.

PMID:[27322440](#)

51. CFS/BET

Lumbopelvic rhythm

BMC Musculoskelet Disord. 2016 Sep 22;17(1):403.

How consistent are lordosis, range of movement and lumbo-pelvic rhythm in people with and without back pain?

Laird RA^{1,2}, Kent P^{3,4}, Keating JL⁵.

Author information

Abstract

BACKGROUND:

Comparing movements/postures in people with and without lower back pain (LBP) may assist identifying LBP-specific dysfunction and its relationship to pain or activity limitation. This study compared the consistency in lumbo-pelvic posture and movement (range and pattern) in people with and without chronic LBP (>12 week's duration).

METHODS:

Wireless, wearable, inertial measurement units measured lumbar lordosis angle, range of movement (ROM) and lumbo-pelvic rhythm in adults (n = 63). Measurements were taken on three separate occasions: two tests on the same day with different raters and a third (intra-rater) test one to two weeks later. Participants performed five repetitions of tested postures or movements. Test data were captured automatically. Minimal detectable change scores (MDC₉₀) provided estimates of between-test consistency.

RESULTS:

There was no significant difference between participants with and without LBP for lordosis angle. There were significant differences for pelvic flexion ROM (LBP 60.8°, NoLBP 54.8°, F(1,63) = 4.31, p = 0.04), lumbar right lateral flexion ROM (LBP 22.2°, NoLBP 24.6° F(1,63) = 4.48, p = .04), trunk right lateral flexion ROM (LBP 28.4°, NoLBP 31.7°, F(1,63) = 5.9, p = .02) and lumbar contribution to lumbo-pelvic rhythm in the LBP group (LBP 45.8 %, F(1,63) = 4.20, NoLBP 51.3 % p = .044). MDC₉₀ estimates for intra and inter-rater comparisons were 10°-15° for lumbar lordosis, and 5°-15° for most ROM. For lumbo-pelvic rhythm, we found 8-15 % variation in lumbar contribution to flexion and lateral flexion and 36-56 % variation in extension. Good to excellent agreement (reliability) was seen between raters (mean r = .88, ICC (2,2)).

CONCLUSION:

Comparisons of ROM between people with and without LBP showed few differences between groups, with reduced relative lumbar contribution to trunk flexion. There was no difference between groups for lordosis. Wide, within-group differences were seen for both groups for ROM and lordosis. Due to variability between test occasions, changes would need to exceed 10°-15° for lumbar lordosis, 5°-15° for ROM components, and 8-15 % of lumbar contribution to lumbo-pelvic rhythm, to have 90 % confidence that movements had actually changed. Lordosis, range of movement and lumbo-pelvic rhythm typically demonstrate variability between same-day and different-day tests. This variability needs to be considered when interpreting posture and movement changes.

Back Schools – no evidence of value

Pain. 2016 Oct;157(10):2160-72. doi: 10.1097/j.pain.0000000000000640.

Back schools for the treatment of chronic low back pain: possibility of benefit but no convincing evidence after 47 years of research-systematic review and meta-analysis.

Straube S¹, Harden M, Schröder H, Arendacka B, Fan X, Moore RA, Friede T.
Author information

Abstract

Back schools are interventions that comprise exercise and education components. We aimed to systematically review the randomized controlled trial evidence on back schools for the treatment of chronic low back pain. By searching MEDLINE, Embase, and Cochrane Central as well as bibliographies, we identified 31 studies for inclusion in our systematic review and 5 of these for inclusion in meta-analyses. Meta-analyses for pain scores and functional outcomes revealed statistical superiority of back schools vs no intervention for some comparisons but not others. No meta-analysis was feasible for the comparison of back schools vs other active treatments. Adverse events were poorly reported so that no reliable conclusions regarding the safety of back schools can be drawn, although some limited reassurance in this regard may be derived from the fact that few adverse events and no serious adverse events were reported in the back school groups in the studies that did report on safety. Overall, the evidence base for the use of back schools to treat chronic low back pain is weak; in nearly a half-century since back schools were first trialled, no unequivocal evidence of benefit has emerged.

54. POSTURE

Alignment in LBP

Spine (Phila Pa 1976). 2016 Sep 15;41(18):E1081-7. doi: 10.1097/BRS.0000000000001568.

Association Between Lumbar Spine Sagittal Alignment and L4-L5 Disc Degeneration Among Asymptomatic Young Adults.

Menezes-Reis R¹, Bonugli GP, Dalto VF, da Silva Herrero CF, Defino HL, Nogueira-Barbosa MH.

Author information

Abstract

STUDY DESIGN:

Cross-sectional observational study on the relationship between the degrees of disc degeneration and sagittal alignment in asymptomatic healthy individuals.

OBJECTIVE:

This study sought to determine whether the sagittal spine alignment subtype is related to the prevalence of lumbar disc degeneration.

SUMMARY AND BACKGROUND DATA:

Sagittal balance and spinopelvic parameters might be risk factors for disc degeneration.

METHODS:

A total of 70 asymptomatic participants (36 women and 34 men) without regular physical activity were categorized according to the four subtypes of sagittal alignment proposed by Roussouly. All participants underwent magnetic resonance imaging of the lumbar spine (1.5T) and panoramic radiography of the spine. The degree of disc degeneration was graded using T2-weighted images according to the Pfirrmann classification. Spinopelvic parameters and vertebral curvatures were measured on digital panoramic radiographs using Surgimap software. Interobserver analyses for the Pfirrmann classification and spinopelvic parameters were assessed using the weighted Kappa and intraclass correlation coefficient (ICC), respectively.

RESULTS:

The Kappa associated with disc degeneration classification was 0.79 (95% confidence intervals 0.72-0.87). The ICCs were excellent, with small confidence intervals for all spinopelvic parameters. The type II group (flat lordosis) showed a higher frequency of degenerated discs at L4-L5 (P=0.03) than the type IV group (long and curved lumbar spine). No significant differences in disc degeneration were observed among the four subtypes at the other disc levels. We found a negative, moderate correlation between the spinopelvic parameters and the occurrence of disc degeneration in the type II group.

CONCLUSION:

The Roussouly subtype II sagittal alignment is significantly associated with disc degeneration at L4-L5 in asymptomatic young adults. Our results support the hypothesis that spinal sagittal alignment plays a role in early disc degeneration.

59. PAIN**Glutamate and pain processing**

Pain. 2016 Oct;157(10):2248-56. doi: 10.1097/j.pain.0000000000000634.

Combined glutamate and glutamine levels in pain-processing brain regions are associated with individual pain sensitivity.

Zunhammer M¹, Schweizer LM, Witte V, Harris RE, Bingel U, Schmidt-Wilcke T.
Author information

Abstract

The relationship between glutamate and γ -aminobutyric acid (GABA) levels in the living human brain and pain sensitivity is unknown. Combined glutamine/glutamate (Glx), as well as GABA levels can be measured in vivo with single-voxel proton magnetic resonance spectroscopy. In this cross-sectional study, we aimed at determining whether Glx and/or GABA levels in pain-related brain regions are associated with individual differences in pain sensitivity. Experimental heat, cold, and mechanical pain thresholds were obtained from 39 healthy, drug-free individuals (25 men) according to the quantitative sensory testing protocol and summarized into 1 composite measure of pain sensitivity. The Glx levels were measured using point-resolved spectroscopy at 3 T, within a network of pain-associated brain regions comprising the insula, the anterior cingulate cortex, the mid-cingulate cortex, the dorsolateral prefrontal cortex, and the thalamus. GABA levels were measured using GABA-edited spectroscopy (Mescher-Garwood point-resolved spectroscopy) within the insula, the anterior cingulate cortex, and the mid-cingulate cortex. Glx and/or GABA levels correlated positively across all brain regions.

Gender, weekly alcohol consumption, and depressive symptoms were significantly associated with Glx and/or GABA levels. A linear regression analysis including all these factors indicated that Glx levels pooled across pain-related brain regions were positively associated with pain sensitivity, whereas no appreciable relationship with GABA was found. In sum, we show that the levels of the excitatory neurotransmitter glutamate and its precursor glutamine across pain-related brain regions are positively correlated with individual pain sensitivity. Future studies will have to determine whether our findings also apply to clinical populations.

PTSD in adolescents

Pain. 2016 Oct;157(10):2277-84. doi: 10.1097/j.pain.0000000000000642.

Posttraumatic stress disorder symptoms in youth with vs without chronic pain.

Noel M¹, Wilson AC, Holley AL, Durkin L, Patton M, Palermo TM.

Author information

Abstract

Chronic pain and posttraumatic stress disorder (PTSD) symptoms have been found to co-occur in adults; however, research has not examined this co-occurrence in adolescence, when pediatric chronic pain often first emerges. The aims of this study were to compare the frequency and intensity of PTSD symptoms and stressful life events in cohorts of youth with (n = 95) and without (n = 100) chronic pain and their parents and to determine the association between PTSD symptoms, health-related quality of life, and pain symptoms within the chronic pain sample. All participants completed questionnaire measures through an online survey. Findings revealed that youth with chronic pain and their parents had significantly higher levels of PTSD symptoms as compared with pain-free peers. More youth with chronic pain (32%) and their parents (20%) reported clinically significant elevations in PTSD symptoms than youth without chronic pain (8%) and their parents (1%). Youth with chronic pain also reported a greater number of stressful life events than those without chronic pain, and this was associated with higher PTSD symptoms.

Among the chronic pain cohort, higher levels of PTSD symptoms were predictive of worse health-related quality of life and were associated with higher pain intensity, unpleasantness, and interference. Results suggest that elevated PTSD symptoms are common and linked to reduced functioning among youth with chronic pain. Future research is needed to examine PTSD at the diagnostic level and the underlying mechanisms that may explain why this co-occurrence exists

Pain interrupts tasks

Pain. 2016 Oct;157(10):2179-93. doi: 10.1097/j.pain.0000000000000627.

The effect of pain on task switching: pain reduces accuracy and increases reaction times across multiple switching paradigms.

Attridge N¹, Keogh E, Eccleston C.
Author information

Abstract

Pain disrupts attention, which may have negative consequences for daily life for people with acute or chronic pain. It has been suggested that switching between tasks may leave us particularly susceptible to pain-related attentional disruption, because we need to disengage our attention from one task before shifting it onto another. Switching tasks typically elicit lower accuracies and/or longer reaction times when participants switch to a new task compared with repeating the same task, and pain may exacerbate this effect. We present 3 studies to test this hypothesis. In study 1, participants completed 2 versions of an alternating runs switching task under pain-free and thermal pain-induction conditions. Pain did not affect performance on either task. In studies 2 and 3, we examined 7 versions of the switching task using large general population samples, experiencing a variety of naturally occurring pain conditions, recruited and tested on the internet. On all tasks, participants with pain had longer reaction times on both switch and repeat trials compared with participants without pain, but pain did not increase switch costs. In studies 2 and 3, we also investigated the effects of type of pain, duration of pain, and analgesics on task performance.

We conclude that pain has a small dampening effect on performance overall on switching tasks. This suggests that pain interrupts attention even when participants are engaged in a trial, not only when attention has been disengaged for shifting to a new task set.

61. FIBROMYALGIA

Opioid use

Pain. 2016 Oct;157(10):2208-16. doi: 10.1097/j.pain.0000000000000631.

Does association of opioid use with pain and function differ by fibromyalgia or widespread pain status?

Turner JA¹, Shortreed SM, Saunders KW, LeResche L, Thielke S, Von Korff M.
Author information

Abstract

Many consider chronic opioid therapy (COT) to be ineffective for fibromyalgia, but empirical evidence is limited. Among patients identified as initiating COT, we examined whether fibromyalgia was associated with different relationships of opioid use to pain and activity interference outcomes 12 months later. We obtained electronic data on diagnoses and opioid prescriptions. We obtained patient self-report data, including pain and activity interference measures, at baseline, 4 months, and 12 months. Among 1218 patients, 429 (35%) met our definition of fibromyalgia. Patients with and without fibromyalgia who had intermittent/lower-dose or regular/higher-dose opioid use at 12 months had similar 12-month pain intensity scores. However, among patients with minimal/no opioid use at 12 months, 12-month pain intensity was greater for those with fibromyalgia (adjusted mean = 5.15 [95% confidence interval, 4.80-5.51]; 0-10 scale) than for those without (4.44 [4.15-4.72]). Similar patterns were observed for 12-month activity interference. Among patients who discontinued opioids by 12 months, those with fibromyalgia were more likely to report bothersome side effects and less likely to report pain improvement as important reasons for discontinuation ($P < 0.05$). In sum, at 12 months, among patients who had discontinued opioids or used them minimally, those with fibromyalgia had worse outcomes and were less likely to have discontinued because of pain improvement.

Among patients continuing COT, pain and activity interference outcomes were worse than those of patients with minimal/no opioid use and did not differ for those with fibromyalgia vs those with diverse other chronic pain conditions.

Central mechanisms

Pain. 2016 Oct;157(10):2217-25. doi: 10.1097/j.pain.0000000000000633.

Endogenous opioidergic dysregulation of pain in fibromyalgia: a PET and fMRI study.

Schrepf A¹, Harper DE, Harte SE, Wang H, Ichesco E, Hampson JP, Zubieta JK, Clauw DJ, Harris RE.

Author information

Abstract

Endogenous opioid system dysfunction potentially contributes to chronic pain in fibromyalgia (FM), but it is unknown if this dysfunction is related to established neurobiological markers of hyperalgesia. We previously reported that μ -opioid receptor (MOR) availability was reduced in patients with FM as compared with healthy controls in several pain-processing brain regions. In the present study, we compared pain-evoked functional magnetic resonance imaging with endogenous MOR binding and clinical pain ratings in female opioid-naive patients with FM ($n = 18$) using whole-brain analyses and regions of interest from our previous research. Within antinociceptive brain regions, including the dorsolateral prefrontal cortex ($r = 0.81$, $P < 0.001$) and multiple regions of the anterior cingulate cortex (all $r > 0.67$; all $P < 0.02$), reduced MOR availability was associated with decreased pain-evoked neural activity. Additionally, reduced MOR availability was associated with lower brain activation in the nucleus accumbens ($r = 0.47$, $P = 0.050$). In many of these regions, pain-evoked activity and MOR binding potential were also associated with lower clinical affective pain ratings. These findings are the first to link endogenous opioid system tone to regional pain-evoked brain activity in a clinical pain population. Our data suggest that dysregulation of the endogenous opioid system in FM could lead to less excitation in antinociceptive brain regions by incoming noxious stimulation, resulting in the hyperalgesia and allodynia commonly observed in this population. We propose a conceptual model of affective pain dysregulation in FM.

62 A. NUTRITION/VITAMINS**Mediterranean diet and quality of life****Adherence to the Mediterranean diet is associated with better quality of life: Data from the Osteoarthritis Initiative**

American Journal of Clinical Nutrition, 09/29/2016

Veronese N, et al. – In this study, the researchers examined whether a higher adherence to the Mediterranean diet (aMED) was connected with better QOL and decreased pain, stiffness, disability, and depression in a large cohort of North Americans from the Osteoarthritis Initiative. The findings demonstrate that higher aMED is connected with better QOL and decreased pain, disability, and depressive symptoms.

Methods

- In this study, aMED was assessed through a validated Mediterranean diet score categorized into quintiles.
- Results of interest were QOL [assessed with the 12-Item Short-Form Health Outcome Survey (SF-12)]; disability, pain, and stiffness [assessed in both knees with the Western Ontario and McMaster Universities Arthritis Index (WOMAC)]; and depressive symptoms [assessed with the Center for Epidemiologic Studies Depression Scale (CES-D)].

Results

- Of the 4470 members (2605 women; mean age: 61.3 y), those with a higher aMED had significantly more favorable scores on all results investigated ($P < 0.0001$ for all comparisons).
- After adjustment for potential confounders in linear regression analyses, a higher aMED was significantly connected with a higher SF-12 physical composite scale value (β : 0.10; 95% CI: 0.05, 0.15; $P < 0.0001$), lower WOMAC scores (except for stiffness), and lower CES-D scores (β : -0.05; 95% CI: -0.09, -0.01; $P = 0.01$).
- An adjusted logistic regression analysis, taking as reference those in the 2 highest quintiles of the aMED score, affirmed these discoveries.

63. PHARMACOLOGY

Opioids and adolescents

Pain. 2016 Oct;157(10):2173-8. doi: 10.1097/j.pain.0000000000000624.

Adolescent context of exposure to prescription opioids and substance use disorder symptoms at age 35: a national longitudinal study.

McCabe SE¹, Veliz P, Schulenberg JE.
Author information

Abstract

The objective of this study was to examine the association of context of prescription opioid exposure (ie, medical or nonmedical) in adolescence with the subsequent risk of nonmedical use of prescription opioids (NMUPO) and substance use disorder (SUD) symptoms at age 35. Multiple cohorts of nationally representative probability samples of U.S. high school seniors (n = 4072) were surveyed through self-administered questionnaires and followed longitudinally from adolescence (modal age 18, graduating classes 1976-1996) to age 35 (1993-2013). Main outcome measures were past-year NMUPO and SUD symptoms. The medical and NMUPO during adolescence was significantly associated with NMUPO at age 35. Relative to no prescription opioid exposure, medical use of prescription opioids without any history of NMUPO during adolescence was not associated with SUD symptoms at age 35. In contrast, compared with no prescription opioid exposure during adolescence, the adjusted odds ratios (AORs) associated with SUD symptoms at age 35 were greater among those with a history of both medical use of prescription opioids and NMUPO during adolescence, AOR = 1.49 (95% CI = 1.13-1.97); and among those who reported NMUPO only, AOR = 2.61 (95% CI = 1.88-3.61).

The findings indicate medical use of prescription opioids without any history of NMUPO in adolescence is not associated with SUD symptoms at age 35, whereas any NMUPO in adolescence predicts SUD symptoms at age 35. Screening instruments and preventive intervention programs to reduce NMUPO and SUDs must account for the context associated with prescription opioid exposure during adolescence.