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LUMBAR SPINE

Osteophytes reabsorption

Spine (Phila Pa 1976). 2014 Aug 15;39(18):E1110-5. doi: 10.1097/BRS.0000000000000454.

Fate of osteophytes and sclerosis in fused segments after lumbar fusion.

Ha KY¹, Molon JN, Ahn JH, Kim YH.

Abstract

STUDY DESIGN:

Retrospective cohort study.

OBJECTIVE:

To investigate the fate of sclerosis and anterior osteophytes in the fused segments after instrumented lumbar fusion for degenerative lumbar disorders.

SUMMARY OF BACKGROUND DATA:

Sclerosis and osteophytosis are well-known radiographical findings, but little is known of their significance with regard to spontaneous resorption after spine fusion.

METHODS:

Thirty patients (9 males, 21 females; 60 vertebra; mean age of 66.9 yr [45-86 yr]) were divided into a posterolateral fusion group (n = 14, 28 vertebrae) and a posterior lumbar interbody fusion group (n = 16, 32 vertebrae). Using serial radiographs obtained preoperatively; postoperatively at 3, 6, 12, and 24 months; and last follow-up, sclerotic areas of each involved vertebra were mapped and osteophyte lengths were measured.

RESULTS:

Sclerosis and osteophytes decreased with time for the instrumented fusion. The decrease in sclerotic areas and osteophytes length was observed as early as 3 months postoperatively, and the significant changes between each time point were noted in initial 3- and 6-month intervals. In terms of the type of surgery, similar changes were noted in the posterolateral fusion and posterior lumbar interbody fusion groups.

CONCLUSION:

Resorption of osteophytes and sclerosis after instrumented spine fusion were observed. Significant resorption was noted at 3 and 6 months postoperatively. As well, most graft bone would be incorporated in postoperative 6 months. Resorption of osteophytes and sclerosis after instrumented spine fusion could be helpful to confirm the successful union.

LEVEL OF EVIDENCE: 4.

PMID: 24921841

LBP**Definition of Chronic LBP**

J Manipulative Physiol Ther. 2014 Aug 12.

Report of the National Institutes of Health Task Force on Research Standards for Chronic Low Back Pain.

Deyo RA¹, Dworkin SF², Amtmann D³, Andersson G⁴, Borenstein D⁵, Carragee E⁶, Carrino J⁷, Chou R⁸, Cook K⁹, DeLitto A¹⁰, Goertz C¹¹, Khalsa P¹², Loeser J¹³, Mackey S¹⁴, Panagis J¹⁵, Rainville J¹⁶, Tosteson T¹⁷, Turk D¹⁸, Von Korff M¹⁹, Weiner DK²⁰.

Abstract**OBJECTIVES:**

Despite rapidly increasing intervention, functional disability due to chronic low back pain (cLBP) has increased in recent decades. We often cannot identify mechanisms to explain the major negative impact cLBP has on patients' lives. Such cLBP is often termed nonspecific and may be due to multiple biologic and behavioral etiologies. Researchers use varied inclusion criteria, definitions, baseline assessments, and outcome measures, which impede comparisons and consensus. The purpose of this article is to disseminate the report of the National Institutes of Health (NIH) task force on research standards for cLBP.

METHODS:

The NIH Pain Consortium charged a research task force (RTF) to draft standards for research on cLBP. The resulting multidisciplinary panel developed a 3-stage process, each with a 2-day meeting.

RESULTS:

The panel recommended using 2 questions to define cLBP; classifying cLBP by its impact (defined by pain intensity, pain interference, and physical function); use of a minimal data set to describe research subjects (drawing heavily on the Patient Reported Outcomes Measurement Information System methodology); reporting "responder analyses" in addition to mean outcome scores; and suggestions for future research and dissemination. The Pain Consortium has approved these recommendations, which investigators should incorporate into NIH grant proposals.

CONCLUSIONS:

The RTF believes that these recommendations will advance the field, help to resolve controversies, and facilitate future research addressing the genomic, neurologic, and other mechanistic substrates of cLBP. Greater consistency in reporting should facilitate comparisons among studies and the development of phenotypes. We expect the RTF recommendations will become a dynamic document and undergo continual improvement.

KEYWORDS: Chronic Pain; Low Back Pain; Patient Outcome Assessment; Research Design

PMID: 25127996

VISCERA
Prostate cancer

Lancet. 2014 Aug 6.

Screening and prostate cancer mortality: results of the European Randomised Study of Screening for Prostate Cancer (ERSPC) at 13 years of follow-up.

Schröder FH¹, Auvinen A²⁷; for the ERSPC Investigators.

Abstract

BACKGROUND:

The European Randomised study of Screening for Prostate Cancer (ERSPC) has shown significant reductions in prostate cancer mortality after 9 years and 11 years of follow-up, but screening is controversial because of adverse events such as overdiagnosis. We provide updated results of mortality from prostate cancer with follow-up to 2010, with analyses truncated at 9, 11, and 13 years.

METHODS:

ERSPC is a multicentre, randomised trial with a predefined centralised database, analysis plan, and core age group (55-69 years), which assesses prostate-specific antigen (PSA) testing in eight European countries. Eligible men aged 50-74 years were identified from population registries and randomly assigned by computer generated random numbers to screening or no intervention (control). Investigators were masked to group allocation. The primary outcome was prostate cancer mortality in the core age group. Analysis was by intention to treat. We did a secondary analysis that corrected for selection bias due to non-participation. Only incidence and no mortality data at 9 years' follow-up are reported for the French centres. This study is registered with Current Controlled Trials, number ISRCTN49127736.

FINDINGS:

With data truncated at 13 years of follow-up, 7408 prostate cancer cases were diagnosed in the intervention group and 6107 cases in the control group. The rate ratio of prostate cancer incidence between the intervention and control groups was 1.91 (95% CI 1.83-1.99) after 9 years (1.64 [1.58-1.69] including France), 1.66 (1.60-1.73) after 11 years, and 1.57 (1.51-1.62) after 13 years. The rate ratio of prostate cancer mortality was 0.85 (0.70-1.03) after 9 years, 0.78 (0.66-0.91) after 11 years, and 0.79 (0.69-0.91) at 13 years. The absolute risk reduction of death from prostate cancer at 13 years was 0.11 per 1000 person-years or 1.28 per 1000 men randomised, which is equivalent to one prostate cancer death averted per 781 (95% CI 490-1929) men invited for screening or one per 27 (17-66) additional prostate cancer detected. After adjustment for non-participation, the rate ratio of prostate cancer mortality in men screened was 0.73 (95% CI 0.61-0.88).

INTERPRETATION:

In this update the ERSPC confirms a substantial reduction in prostate cancer mortality attributable to testing of PSA, with a substantially increased absolute effect at 13 years compared with findings after 9 and 11 years. Despite our findings, further quantification of harms and their reduction are still considered a prerequisite for the introduction of population-based screening.

FUNDING: Each centre had its own funding responsibility.

PMID: 25108889

Delivery pain preferences

Br J Anaesth. 2014 Sep;113(3):468-73. doi: 10.1093/bja/aeu149. Epub 2014 Jun 6.

Prospective longitudinal cohort questionnaire assessment of labouring women's preference both pre- and post-delivery for either reduced pain intensity for a longer duration or greater pain intensity for a shorter duration.

Carvalho B¹, Hilton G², Wen L², Weiniger CF³.

Abstract

BACKGROUND:

Assessments of labour pain focus on pain intensity, not on duration. We aimed to assess the importance labouring women apply to pain intensity and duration before labour and post-delivery.

METHODS:

Forty healthy women scheduled for labour induction were enrolled in this institutional review board-approved, prospective cohort study. Participants completed a pain preference questionnaire before active labour and within 24-h of delivery. The questionnaire consisted of seven stem questions that evaluated preference for pain intensity or duration. The pain preference ratio was determined by dividing the percentage of women who preferred reduced pain intensity for longer duration by that of those who preferred greater pain intensity for shorter duration (estimate of the odds). The overall hypothetical pain burden was determined by multiplying intensity by time. All questions presented the same overall hypothetical pain burden.

RESULTS:

Pain preference questionnaire scores demonstrated preference for low intensity pain for a longer duration rather than higher intensity for a shorter duration, both pre-labour ($P < 0.001$) and post-delivery ($P < 0.001$): the null median imputed as 3 of 6 (i.e. no preference for pain intensity over pain duration). This preference for pain duration over intensity was greater post-delivery compared with before labour ($P = 0.03$). There was a significant correlation ($r = 0.83$; $P = 0.04$) between the pain preference ratio vs overall hypothetical pain burden before labour but not after delivery ($r = 0.28$; $P = 0.59$).

CONCLUSIONS:

In this preliminary labour assessment, women preferred lower pain intensity at the cost of longer pain duration. This suggests that pain intensity is the primary driver of hypothetical pain burden-a preference reinforced post-delivery.

KEYWORDS: analgesia; labour pain; pain; patient preference

PMID: 24907280

CERVICAL SPINE

Cervical injections and radiculopathy

AJNR Am J Neuroradiol. 2014 Aug

Transforaminal versus Intra-Articular Facet Corticosteroid Injections for the Treatment of Cervical Radiculopathy: A Randomized, Double-Blind, Controlled Study.

Bureau NJ¹, Moser T², Dagher JH³, Shedid D⁴, Li M⁵, Brassard P⁶, Leduc BE⁷.

Abstract

BACKGROUND AND PURPOSE:

Transforaminal corticosteroid injections can be performed in the management of cervical radiculopathy but carry the risk of catastrophic complications. This study compares the efficacy of transforaminal and facet corticosteroid injections at 4 weeks' follow-up.

MATERIALS AND METHODS:

We randomly assigned 56 subjects to receive CT-guided transforaminal (15 men, 13 women; mean age, 52 years; range, 28-72 years) or facet (8 men, 20 women; mean, 44 years; range, 26-60 years) injections. The primary outcome was pain severity rated on a Visual Analog Scale (0-100). Secondary outcomes were the Neck Disability Index and the Medication Quantitative Scale.

RESULTS:

In the intention-to-treat and as-treated analyses, for a mean baseline score, facet injections demonstrated a significant pain score reduction of 45.3% (95% CI, 21.4-69.2) and 37.0% (95% CI, 9.2-64.7), while transforaminal injections showed a nonsignificant pain score reduction of 9.8% (95% CI, +11.5-31.2) and 17.8% (95% CI, +6.6-42.2). While facet injections demonstrated an improvement in the Neck Disability Index score of 24.3% (95% CI, +2.9-51.5) and 20.7% (95% CI, +6.2-47.6) as opposed to transforaminal injections of 9.6% (95% CI, +15.2-34.4) and 12.8% (95% CI, +11.2-36.7), the results were not statistically significant. Noninferiority of facet to transforaminal injections was demonstrated for baseline pain scores of ≤ 60 , while noninferiority analysis was inconclusive for baseline pain scores of ≥ 80 and for the Neck Disability Index. Neither intervention showed a significant medication-intake score reduction with time.

CONCLUSIONS:

Facet injections are effective for the treatment of cervical radiculopathy and represent a valid and safer alternative to transforaminal injections.

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PMID: 24874533

Predicting c spine pain potential

J Manipulative Physiol Ther. 2014 Aug 12.

Development of a Neck Pain Risk Score for Predicting Nonspecific Neck Pain With Disability in Office Workers: A 1-Year Prospective Cohort Study.

Paksaichol A¹, Janwantanakul P², Lawsirirat C³.

Abstract

OBJECTIVE:

The purpose of this study was to develop a neck pain risk score for office workers (NROW) to identify office workers at risk for developing nonspecific neck pain with disability.

METHODS:

A 1-year prospective cohort study of 559 healthy office workers was conducted. At baseline, risk factors were assessed using questionnaires and standardized physical examination. The incidence of neck pain was collected every month thereafter. Disability level was evaluated using the neck disability index. Logistic regression was used to select significant factors to build a risk score. The coefficients from the logistic regression model were transformed into the components of a risk score.

RESULTS:

Among 535 (96%) participants who were followed up for 1 year, 23% reported incident neck pain with disability (≥ 5). After adjusting for confounders, the onset of neck pain with disability was significantly associated with history of neck pain, chair adjustability, and perceived muscular tension. Thus, the NROW comprises 3 questions about history of neck pain, chair adjustability, and perceived muscular tension. The NROW had scores ranging from 0 to 4. A cut-off score of at least 2 had a sensitivity of 82% and specificity of 48%. The positive and negative predictive values were 29% and 91%, respectively. The area under the receiver operating characteristic curve was 0.75.

CONCLUSION:

The risk score for nonspecific neck pain with disability in office workers was developed, and it contained 3 items with scores ranging from 0 to 4. This study shows that the score appears to have reasonable sensitivity, specificity, positive predictive value, and negative predictive values for the cut-off point of at least 2.

KEYWORDS: Computers; Musculoskeletal Diseases; Prevention; Risk Factors; Sensitivity and Specificity

PMID: 25127997

CRANIUM/TMJ

Central sensitization and TMD

Pain. 2014 Aug 14. pii: S0304-3959(14)00366-2. doi: 10.1016/j.pain.2014.08.007.

Pressure pain thresholds fluctuate with - but do not usefully predict - the clinical course of painful temporomandibular disorder.

Slade GD¹, Sanders AE², Ohrbach R³, Filligim RB⁴, Dubner R⁵, Gracely RH⁶, Bair E⁷, Maixner W⁶, Greenspan JD⁵.

Abstract

Purpose: Central sensitization elicits pain hypersensitivity and is thought to be causally implicated in painful temporomandibular disorder (TMD). This causal inference is based on cross-sectional evidence that people with TMD have greater sensitivity than controls to noxious stimuli.

Methods: We tested this inference in the OPPERA prospective cohort study of 3,258 adults with no lifetime history of TMD when enrolled (Visit 1).

Findings: During five years of follow-up, one group labelled "persistent TMD cases" (n=72)

developed first-onset TMD by Visit 2 that persisted ≥ 6 months until Visit 3. Another group

labelled "transient TMD cases" (n=75) developed first-onset TMD at Visit 2 which resolved by Visit 3. Randomly sampled "controls" (n=126) remained TMD-free throughout all three visits. At each visit, pressure pain thresholds (PPTs) were measured by algometry at 10 cranial and bodily sites. In persistent TMD cases, mean PPTs reduced 43 kPa ($P < 0.0001$) between Visits 1 and 2 and thereafter did not change significantly. In transient TMD cases, mean PPTs reduced 41 kPa ($P < 0.001$) between Visits 1 and 2, and then increased 20 kPa ($P < 0.001$) by Visit 3. These patterns were similar after excluding cranial sites symptomatic for TMD.

Conclusions: Importantly, Visit 1 PPTs had no clinically useful prognostic value in predicting first-onset TMD (odds ratio [OR] = 1.07, $P = 0.15$). Among first-onset cases, Visit 2 PPTs were modest predictors of persistent TMD (OR = 1.36, $P = 0.002$). In this longitudinal study, PPTs reduced when TMD developed then rebounded when TMD resolved. However, pre-morbid PPTs poorly predicted TMD incidence, countering the hypothesis that they signify mechanisms causing first-onset TMD.

KEYWORDS: Algometry; Epidemiology; Longitudinal studies; Pressure pain thresholds; Temporomandibular disorder

PMID: 25130428

Posture and TMD

J Manipulative Physiol Ther. 2014 Aug 6.

Global Body Posture and Plantar Pressure Distribution in Individuals With and Without Temporomandibular Disorder: A Preliminary Study.

Souza JA¹, Pasinato F², Corrêa EC³, da Silva AM⁴.

Abstract

OBJECTIVE:

The aim of this study was to evaluate body posture and the distribution of plantar pressure at physiologic rest of the mandible and during maximal intercuspal positions in subjects with and without temporomandibular disorder (TMD).

METHODS:

Fifty-one subjects were assessed by the Diagnostic Criteria for Research on Temporomandibular Disorders and divided into a symptomatic group (21) and an asymptomatic group (30). Postural analysis for both groups was conducted using photogrammetry (SAPO version 0.68; University of São Paulo, São Paulo, Brazil). The distribution of plantar pressures was evaluated by means of baropodometry (Footwork software), at physiologic rest and maximal intercuspal positions.

RESULTS:

Of 18 angular measurements, 3 (17%) were statistically different between the groups in photogrammetric evaluation. The symptomatic group showed more pronounced cervical distance ($P = .0002$), valgus of the right calcaneus ($P = .0122$), and lower pelvic tilt ($P = .0124$). The baropodometry results showed the TMD subjects presented significantly higher rearfoot and lower forefoot distribution than those in the asymptomatic group. No differences were verified in maximal intercuspal position in the between-group analysis and between the 2 mandibular positions in the within-group analysis.

CONCLUSIONS:

Subjects with and without TMD presented with global body posture misalignment. Postural changes were more pronounced in the subjects with TMD. In addition, symptomatic subjects presented with abnormal plantar pressure distribution, suggesting that TMD may have an influence on the postural system.

KEYWORDS:

Photogrammetry; Posture; Temporomandibular Disorder

PMID: 25108750

HEADACHES

Cluster/parasympathetic

Reduced cranial parasympathetic tone during the remission phase of cluster headache

Cephalalgia, 08/21/2014 Clinical Article, Ofte HK, et al.

Abstract

Background Cluster headache (CH) attacks are accompanied by cranial autonomic symptoms indicative of parasympathetic hyperactivity and sympathetic dysfunction ipsilateral to the pain. We aimed to assess cranial autonomic function in CH patients during the remission phase of cluster headache.

Materials and methods During a remission phase, 38 episodic CH patients underwent the following: dynamic pupillometry, measurement of the superficial temporal artery diameter by ultrasound, and measurement of the retinal vessel diameters from digital retinal photographs. Pupillometry was also performed on 30 age- and sex-matched healthy controls.

Results Thirty patients were included (27 men, three women, mean age 50.2 years \pm 12.6). Seven patients reported occasional side shift of their headache, but with a clear predominating side. Significantly reduced average pupillary constriction velocity and retinal venular diameter on the CH pain side were found. There was no asymmetry of the superficial temporal artery diameters. Compared to healthy controls, cluster patients displayed bilaterally reduced pupillary average and maximum constriction velocities, reduced constriction in percentage and increased latency of the light reflex.

Conclusions The present findings indicate a bilaterally reduced cranial parasympathetic tone in CH patients in remission phase, with significant lateralization to the CH pain side. This implies a central origin, and a central pathophysiological model of CH is discussed.

ROTATOR CUFF

Tests values

J Orthop Surg Res. 2014 Aug 7;9:70. doi: 10.1186/s13018-014-0070-y.

The diagnostic value of the combination of patient characteristics, history, and clinical shoulder tests for the diagnosis of rotator cuff tear.

van Kampen DA¹, van den Berg T, van der Woude HJ, Castelein RM, Scholtes VA, Terwee CB, Willems WJ.

Abstract

BACKGROUND:

It is unknown which combination of patient information and clinical tests might be optimal for the diagnosis of rotator cuff tears. This study aimed to determine the diagnostic value of nine individual clinical tests for evaluating rotator cuff tear and to develop a prediction model for diagnosing rotator cuff tear.

METHODS:

This prospective cohort study included 169 patients with shoulder complaints. Patients who reported a previous shoulder dislocation were excluded from the analysis (N = 69). One experienced clinician conducted 25 clinical tests of which 9 are specifically designed to diagnose rotator cuff pathology (empty can, Neer, Hawkins-Kenney, drop arm, lift-off test, painful arc, external rotation lag sign, drop sign, infraspinatus muscle strength test). The final diagnosis, based on magnetic resonance arthrography (MRA), was determined by consensus between the clinician and a radiologist, who were blinded to patient information. A prediction model was developed by logistic regression analysis.

RESULTS AND DISCUSSION:

In this cohort, 38 patients were diagnosed with rotator cuff tears. The individual overall accuracy of the rotator cuff clinical tests was 61%-75%. After backward selection, the model determined that the most important predictors of rotator cuff tears were higher age and a positive Neer test. This internally validated prediction model had good discriminative ability (area under the receiver operating characteristic curve (AUC) = 0.73).

CONCLUSION:

Our results showed that individual clinical shoulder tests had moderate diagnostic value for diagnosing rotator cuff tear. Our prediction model showed improved diagnostic value. However, the prediction value is still relatively low, supporting a low threshold for additional diagnostic tests for the diagnosis of rotator cuff tears.

LEVEL OF EVIDENCE:

Study of diagnostic test: level I.

PMID: 25099359

HIP Replacements

Gluteus medius fatty infiltrate and falls

Archives of Gerontology and Geriatrics DOI: <http://dx.doi.org/10.1016/j.archger.2014.07.013>

Fatty degeneration of gluteus minimus muscle as a predictor of falls

Yoshiro Kiyoshige  Emi Watanabe

Abstract

Purpose: The cause of falls is multifactorial, however, hip fractures in elderly would be prevented if accidental falls are predictable.

Methods: We assessed magnetic resonance images of 38 patients with groin pain after taking a fall whose fracture could not be detected by plain X-rays, and 45 patients with no episode of falls. Their ages were over 65 years. Fatty degeneration of muscles, gluteus maximus, gluteus medius, gluteus minimus, obturator externus, adductor longus, rectus femoris and iliopsoas muscles, were evaluated by Goutallier's staging. Odds ratio was calculated by a logistic regression analysis allocating dependent variable for falls and independent variables for Goutallier's stage, age and gender.

Findings: The fatty degeneration of gluteus maximus muscle was generalized, while that of gluteus minimus muscle was unevenly distributed, especially in anterior area. Gluteus minimus muscle initiated its fatty degeneration earlier than gluteus medius muscle. Odds ratio of falling was 3.2 in Goutallier' stage of the gluteus medius muscle. Fatty degeneration of gluteus medius muscle has a crucial role in providing stability of the pelvis including hip joint.

Conclusions: Evaluating fatty streaks in the gluteus minimus muscle could help give early indication to those who have a higher risk of falling.

Keywords: Fatty degeneration, Gluteal muscle, Falls

Sitting angle

Int Orthop. 2014 Aug 19.

The kinematic relationship between sitting and standing posture and pelvic inclination and its significance to cup positioning in total hip arthroplasty.

Stephens A¹, Munir S, Shah S, Walter WL.

Abstract

PURPOSE:

The aim of this study is to describe the influence of sitting and standing posture on sagittal pelvic inclination in total hip replacement patients to assist with correct acetabular component positioning.

METHODS:

Lateral radiographs of the pelvis and lumbar spine in sitting and standing positions were extracted. Pelvic tilt was measured using the vertical inclination of a line from the anterior superior iliac spine (ASIS) to pubic tubercle. Sacral inclination, Cobb angle of the lumbar spine and hip flexion were recorded.

RESULTS:

Sixty patients were identified with a mean age of 63. Men were more likely to flex the lumbar spine in sitting ($p = 0.004$); 80° of hip flexion is required for seated posture. Stiff hips required compensatory pelvic flexion and lumbar flexion in sitting. There is a linear relationship between hip flexion and pelvic tilt, hip flexion and lumbar lordosis.

CONCLUSIONS:

Pelvic orientation is determined by lumbar and hip stiffness. This impacts on acetabular version.

PMID: 25132150

Knee/ACL

Comparisons

Int Orthop. 2014 Aug 17.

A comparison of ACL reconstruction using patellar tendon versus hamstring autograft in female patients: a prospective randomised study.

Kautzner J¹, Kos P, Hanus M, Trc T, Havlas V.

Abstract

PURPOSE:

The incidence of an anterior cruciate ligament (ACL) tear is highest in female patients; however, it is not apparent whether graft choice affects clinical results. The aim of this prospective randomised study was to evaluate clinical results of an ACL reconstruction using patellar tendon [bone-patellar tendon-bone (BTB)] or hamstring graft (HS) in female patients.

METHODS:

Inclusion criteria were traumatic instability, no signs of osteoarthritis, no previous instability and no contralateral knee instability. Inclusion criteria were met in 150 patients, mean age 26 (17-47) years. Patients were randomised into two groups of 75 patients according to graft type; all had the same rehabilitation protocol. Tegner Lysholm knee score and stability were evaluated pre-operatively and one and two years postoperatively. The difference between groups was statistically evaluated using unpaired t test.

RESULTS:

Of the 150 patients, all completed one year follow-up; three were lost to follow-up at two years. There was no significant difference in functional scores and knee stability between groups. The HS group had significantly less anterior knee pain in the first six months postoperatively.

CONCLUSION:

ACL reconstruction significantly improves clinical results and stability of the knee. Difference in Lysholm score and stability between groups was not significant. Neither group showed higher tendency to graft failure within two years. Graft choice for reconstruction in female patients should be surgeon specific and individualised, as both grafts studied achieved comparable results.

PMID: 25128968

Results of ACL

J Bone Joint Surg Am. 2014 Aug 6;96(15):1233-1241.

Nonsurgical or Surgical Treatment of ACL Injuries: Knee Function, Sports Participation, and Knee Reinjury: The Delaware-Oslo ACL Cohort Study.

Grindem H¹, Eitzen I², Engebretsen L³, Snyder-Mackler L⁴, Risberg MA¹.

Abstract

BACKGROUND:

While there are many opinions about the expected knee function, sports participation, and risk of knee reinjury following nonsurgical treatment of injuries of the anterior cruciate ligament (ACL), there is a lack of knowledge about the clinical course following nonsurgical treatment compared with that after surgical treatment.

METHODS:

This prospective cohort study included 143 patients with an ACL injury. Isokinetic knee extension and flexion strength and patient-reported knee function as recorded on the International Knee Documentation Committee (IKDC) 2000 form were collected at baseline, six weeks, and two years. Sports participation was reported monthly for two years with use of an online activity survey. Knee reinjuries were reported at the follow-up evaluations and in a monthly online survey. Repeated analysis of variance (ANOVA), generalized estimating equation (GEE) models, and Cox regression analysis were used to analyze group differences in functional outcomes, sports participation, and knee reinjuries, respectively.

RESULTS:

The surgically treated patients (n = 100) were significantly younger, more likely to participate in level-I sports, and less likely to participate in level-II sports prior to injury than the nonsurgically treated patients (n = 43). There were no significant group-by-time effects on functional outcome. The crude analysis showed that surgically treated patients were more likely to sustain a knee reinjury and to participate in level-I sports in the second year of the follow-up period. After propensity score adjustment, these differences were nonsignificant; however, the nonsurgically treated patients were significantly more likely to participate in level-II sports during the first year of the follow-up period and in level-III sports over the two years. After two years, 30% of all patients had an extensor strength deficit, 31% had a flexor strength deficit, 20% had patient-reported knee function below the normal range, and 20% had experienced knee reinjury.

CONCLUSIONS:

There were few differences between the clinical courses following nonsurgical and surgical treatment of ACL injury in this prospective cohort study. Regardless of treatment course, a considerable number of patients did not fully recover following the ACL injury, and future work should focus on improving the outcomes for these patients.

LEVEL OF EVIDENCE: Therapeutic Level II.

PMID: 25100769

Over 50 ACL

The Knee DOI: <http://dx.doi.org/10.1016/j.knee.2014.08.003>

Anterior Cruciate Ligament Reconstruction in Patients Over 50 Years of Age

David Figueroa  Francisco Figueroa,,Rafael Calvo,Alex Vaisman,Gonzalo Espinoza,Federico Gili

Highlights

- ACL reconstruction in people older than 50 years has a high rate of sports return.
- Patients older than 50 years have a complication rate similar to younger people.
- ACL reconstruction even with mild osteoarthritis has good results.

Abstract

Purpose: To describe the clinical outcomes of patients over 50 years old with acute anterior cruciate ligament (ACL) ruptures following ACL reconstructions.

Methods: A prospective series of patients over the age of 50 years with diagnoses of ACL ruptures who underwent ACL reconstructions was examined. Lysholm and International Knee Documenting Committee (IKDC) subjective scores were assessed preoperatively and the final follow-up. All associated injuries were documented, and complications were reported. The patients' satisfaction and return to sports were and documented. The statistical analyses were performed with Student's t-tests for independent samples.

Results: Fifty patients with a mean age of 52.12 years (50-64) and a mean follow-up period of 53.17 months (36-68) exhibited a mean postoperative Lysholm score of 93.7 (60 – 100) and IKDC score of 90.96 (57.5 – 100). Associated injuries occurred in 90% (45) of the patients and included the following: 76% (38) meniscal tears and 36% (18) osteochondral lesions.

Complications occurred in 6% (3) of the patients and included the following: 4% (2) ACL ruptures and 2% (1) infections. Among all patients, 88% (44) returned to pre-injury sports levels, and 96% (48) were satisfied.

Conclusions: For patients above the age of 50 years, ACL reconstruction appears to be a safe procedure with good to excellent results that are comparable to those for younger patients, and the possibility for returning to pre-injury sports levels for these patients is high.

Keywords: anterior cruciate ligament, ACL, 50years, older patients, ACL reconstruction

Meniscus

Post surgical

J Bone Joint Surg Am. 2014 Aug 6;96(15):1303-1307.

Outcome of All-Inside Second-Generation Meniscal Repair: Minimum Five-Year Follow-up.

Bogunovic L, Kruse LM, Haas AK, Huston LJ, Wright RW.

Abstract

BACKGROUND:

Meniscal repair and preservation are the goal, when possible, of the treatment of meniscal injury. Current research on second-generation all-inside repair systems has been limited to a maximum of three years of follow-up. The purpose of this study was to evaluate the mid-term clinical success (at more than five years) of meniscal repair performed with a second-generation all-inside repair device, both as an isolated procedure and with a concomitant anterior cruciate ligament (ACL) reconstruction.

METHODS:

This is a retrospective review of patients who underwent meniscal repair with use of the all-inside FAST-FIX Meniscal Repair System (Smith & Nephew Arthroscopy, Andover, Massachusetts) from December 1999 to January 2007. Eighty-three meniscal repairs (in eighty-one patients) were identified, and follow-up data were obtained for seventy-five (90%). Twenty-six (35%) of the meniscal repairs were performed as isolated procedures. Clinical failure was defined as repeat surgical intervention involving resection or revision repair. Clinical outcomes were also assessed with the Knee injury and Osteoarthritis Outcome Score (KOOS), International Knee Documentation Committee (IKDC) score, and the Marx activity score.

RESULTS:

The minimum duration of follow-up was five years (average, seven years). Twelve patients (16%) had failure of the meniscal repair, at an average of forty-seven months (range, fifteen to ninety-five months). The data did not offer enough statistical evidence, at $\alpha = 0.05$, to establish a difference in average patient age, patient sex, or number of sutures utilized between successful repairs and failures. There was no difference in the failure rate between isolated repairs (12%; 95% confidence interval [CI]: -0.76% to 23.76%) and those performed with concurrent ACL reconstruction (18%; 95% CI: 7.47% to 29.13%), and the average time to failure was similar between these two groups (48.1 months versus 46.6 months, $p = 0.939$). Postoperative KOOS and IKDC outcome scores were also similar between the groups.

CONCLUSIONS:

This report of mid-term follow-up results of primary second-generation all-inside meniscal repair demonstrates its effectiveness both as an isolated procedure and when it is performed with concurrent ACL reconstruction. After a minimum of five years of follow-up, 84% of the patients continued to demonstrate successful repair. Treatment success was further supported by favorable results on patient-based outcome measures.

Radial tears

J Orthop Sci. 2014 Aug 16.

Population-based study of the relationship between medial meniscus radial displacement, determined by use of ultrasound screening, and knee pain.

Yanagisawa S¹, Ohsawa T, Saito K, Kobayashi T, Tajika T, Yamamoto A, Shitara H, Takagishi K.

Abstract

PURPOSE:

The purpose of this population-based study was to clarify the incidence of knee pain by use of ultrasound (US).

METHODS:

Medical check-ups were conducted for residents of a mountain village in Japan. The subjects were 149 males and 252 females (802 knees) with a mean age of 63.5 ± 12.5 years. US was used to evaluate the medial joint space of both knees, with and without weight-bearing. For each patient, medial radial displacement of the medial meniscus (MRD) and number of osteophytes were evaluated. A questionnaire was used to determine whether the subjects were currently experiencing knee pain while walking, climbing stairs, or resting that had lasted more than one month. A visual analog scale was used to assess knee pain. The subjects were divided into two groups, those with knee pain (P group) and those without knee pain (non-P group), on the basis of whether a visual analog scale (VAS) was less than or more than 20 mm during walking, climbing stairs, or resting. Logistic regression analysis was used to identify the factors associated with knee pain.

RESULTS:

Significantly different weight-bearing MRD (WMRD), osteophytes, and pain while walking, climbing stairs, or resting ($p < 0.01$) were found between the two groups. Logistic regression analysis showed that WMRD was significantly associated with knee pain during walking or while climbing stairs.

CONCLUSION:

We found that WMRD was significantly associated with knee pain while walking or climbing stairs, which are weight-bearing activities. On the basis of the findings of this study, we believe US is a useful tool for evaluating the factors associated with knee pain in a population-based study.

LEVEL OF EVIDENCE:

Level III.

PMID: 2512367

Obesity and degeneration

Ann Rheum Dis. 2014 Sep;. Epub 2013 Jun 6.

The longitudinal relationship between changes in body weight and changes in medial tibial cartilage, and pain among community-based adults with and without meniscal tears.

Teichtahl AJ¹, Wluka AE¹, Wang Y¹, Strauss BJ², Proietto J³, Dixon JB⁴, Jones G⁵, Forbes A¹, Kouloyan-Ilic S⁶, Martel-Pelletier J⁷, Pelletier JP⁷, Cicuttini FM¹.

Abstract**INTRODUCTION:**

Meniscal tears are commonly found on MRI and increase the risk for radiographic knee osteoarthritis (OA). While meniscectomy is recommended when knee pain is severe or functionally disabling, it is unclear how to best treat meniscal tears without these symptoms. The aim of this longitudinal study was to examine the effect of weight change on knee cartilage and pain in a cohort of community-based adults with and without meniscal tears detected by MRI.

METHODS:

250 adults with no history of knee OA or knee injury were recruited from the general community and weight-loss clinics. MRI of the knee, Western Ontario and McMaster University Osteoarthritis Index (WOMAC), weight and height were measured at baseline and again at follow-up approximately 2 years later.

RESULTS:

Medial meniscal tears were present in 36 (18%) of the cohort. In those with medial meniscal tears, after adjustment for confounders, percentage weight change was significantly associated with percentage change in medial tibial cartilage volume (β 0.2% 95% CI 0.08% to 0.3% $p=0.002$) and knee pain (β 11.6% 95% CI 2.1% to 21.1% $p=0.02$). That is, for every 1% gain in weight, there was an associated 0.2% increased loss of medial tibial cartilage volume and 11.6% increase in pain. In those with no medial meniscal tear, neither change in medial tibial cartilage volume (β 0.02% 95% CI -0.01% to 0.10% $p=0.53$) or pain (β 1.9% 95% CI -2.2% to 6.1% $p=0.36$) were significantly associated with change in weight.

CONCLUSIONS:

This study demonstrated that among adults with medial meniscal tears, weight gain is associated with increased cartilage loss and pain, while weight loss is associated with the converse. This suggests attention to weight is particularly important in the management of people with medial meniscal tears.

KEYWORDS:

Knee Osteoarthritis; Magnetic Resonance Imaging; Osteoarthritis

PMID: 23744978

FOOT AND ANKLE

Anatomy

Foot Ankle Surg. 2014 Sep;20(3):192-4. doi: 10.1016/j.fas.2014.04.001. Epub 2014 Apr 16.

The extensor hallucis capsularis tendon - A prospective study of its occurrence and function.

Bayer T¹, Kolodziejewski N², Flueckiger G².

Abstract

BACKGROUND:

There is inhomogeneous data about the hallucal extensor apparatus and the occurrence of accessory tendon slips and their function. We performed this study to clarify its anatomical features and make conclusions about its function.

METHODS:

Investigations were performed prospectively during operative correction of severe hallux valgus and interphalangeus in 60 consecutive cases. The occurrence, topographic location and size of accessory extensor tendons as well as the insertion patterns were recorded. After dissection traction of the accessory tendon was carried out to gain information about its function.

RESULTS:

In contradiction to previous studies reporting numerous variations in the distal attachments of the hallucal extensor apparatus with different accessory tendons described, our investigations showed constant anatomical features. In all but one case (98.3%) there was an accessory medial extensor hallucis longus tendon adjacent to the main tendon, always inserting on the dorsomedial aspect of the metatarsophalangeal joint capsule. We therefore chose the terminology extensor hallucis capsularis (EHC) used in previous studies. The intraoperative testing of the tendon showed it to exert a pretension of the metatarsophalangeal (MTP) joint capsule.

CONCLUSION:

Our study showed consistent anatomical features with an occurrence of the EHC tendon in 98.3%. We determined that its function is to pretension the MTP joint capsule, therefore avoiding capsular impingement during hallucal extension. The high incidence of the EHC tendon in our study may also postulate a correlation with MTP joint deformities and further cadaveric studies will be necessary to evaluate a possible predisposition for hallux valgus genesis.

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KEYWORDS:

Accessory tendons; Extensor hallucis longus; Hallux valgus; Metatarsophalangeal joint

PMID: 25103707

ANKLE/INSTABILITY

Bracing vs. taping

Br J Sports Med. 2014 Aug;48(16):1235-9. doi: 10.1136/bjsports-2013-092947. Epub 2014 Jan 7.

Bracing superior to neuromuscular training for the prevention of self-reported recurrent ankle sprains: a three-arm randomised controlled trial.

Janssen KW1, van Mechelen W2, Verhagen EA2.

Abstract

BACKGROUND:

Ankle sprain is the most common sports-related injury with a high rate of recurrence and associated costs. Recent studies have emphasised the effectiveness of both neuromuscular training and bracing for the secondary prevention of ankle sprains.

AIM:

To evaluate the effectiveness of combined bracing and neuromuscular training, or bracing alone, against the use of neuromuscular training on recurrences of ankle sprain after usual care.

METHODS:

384 athletes, aged 18-70, who had sustained a lateral ankle sprain, were included (training group n=120; brace group n=126; combi group n=138). The training group received an 8-week home-based neuromuscular training programme, the brace group received a semirigid ankle brace to be worn during all sports activities for 12 months, and the combi group received both the training programme, as well as the ankle brace, to be worn during all sports activities for 8 weeks. The main outcome measure was self-reported recurrence of the ankle sprain.

RESULTS:

During the 1-year follow-up, 69 participants (20%) reported a recurrent ankle sprain: 29 (27%) in the training group, 17 (15%) in the brace group and 23 (19%) in the combi group. The relative risk for a recurrent ankle sprain in the brace group versus the training group was 0.53 (95% CI 0.29 to 0.97). No significant differences were found for time losses or costs due to ankle sprains between the intervention groups.

CONCLUSIONS:

Bracing was superior to neuromuscular training in reducing the incidence but not the severity of self-reported recurrent ankle sprains after usual care.

KEYWORDS:

Ankle injuries; Injury Prevention; Intervention effectiveness; Issues related to taping and bracing; Sports rehabilitation programs

Achilles Tendon

Achilles tendonitis

Foot Ankle Surg. 2014 Sep;20(3):154-159. doi: 10.1016/j.fas.2014.02.010. Epub 2014 Mar 12.

The pathogenesis of Achilles tendinopathy: A systematic review.

Magnan B¹, Bondi M², Pierantoni S², Samaila E².

Abstract

Achilles tendinopathy is a degenerative, not an inflammatory, condition. It is prevalent in athletes involved in running sports. A systematic literature review on Achilles tendon tendinopathy has been performed according to the intrinsic (age, sex, body weight, tendon temperature, systemic diseases, muscle strength, flexibility, previous injuries and anatomical variants, genetic predisposition and blood supply) and extrinsic risk factors (drugs and overuse), which can cause tendon suffering and degeneration. Different theories have been found: Neurogenic, Angiogenic, Impingement and "Iceberg" Hypotheses. Multiple databases were utilized for articles published between 1964 and 2013. The different hypothesis were analyzed, differently considering those concerning the pathogenesis of tendinopathy and those concerning the etiology of complaints in patients. This review of the literature demonstrates the heterogeneity of Achilles tendinopathy pathogenesis. Various risk factors have been identified and have shown an interaction between them such as genes, age, circulating and local cytokine production, sex, biomechanics and body composition.

KEYWORDS:

Achilles pathogenesis; Achilles tendinopathy; Achilles tendon; Tendon degeneration

PMID: 25103700

MANUAL THERAPY

Stroke and manipulations

- AHA/ASA Scientific Statement

Cervical Arterial Dissections and Association With Cervical Manipulative Therapy

A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association

Abstract

Purpose—Cervical artery dissections (CDs) are among the most common causes of stroke in young and middle-aged adults. The aim of this scientific statement is to review the current state of evidence on the diagnosis and management of CDs and their statistical association with cervical manipulative therapy (CMT). In some forms of CMT, a high or low amplitude thrust is applied to the cervical spine by a healthcare professional.

Methods—Members of the writing group were appointed by the American Heart Association Stroke Council’s Scientific Statements Oversight Committee and the American Heart Association’s Manuscript Oversight Committee. Members were assigned topics relevant to their areas of expertise and reviewed appropriate literature, references to published clinical and epidemiology studies, morbidity and mortality reports, clinical and public health guidelines, authoritative statements, personal files, and expert opinion to summarize existing evidence and to indicate gaps in current knowledge.

Results—Patients with CD may present with unilateral headaches, posterior cervical pain, or cerebral or retinal ischemia (transient ischemic or strokes) attributable mainly to artery–artery embolism, CD cranial nerve palsies, oculosympathetic palsy, or pulsatile tinnitus. Diagnosis of CD depends on a thorough history, physical examination, and targeted ancillary investigations. Although the role of trivial trauma is debatable, mechanical forces can lead to intimal injuries of the vertebral arteries and internal carotid arteries and result in CD. Disability levels vary among CD patients with many having good outcomes, but serious neurological sequelae can occur. No evidence-based guidelines are currently available to endorse best management strategies for CDs. Antiplatelet and anticoagulant treatments are both used for prevention of local thrombus and secondary embolism. Case-control and other articles have suggested an epidemiologic association between CD, particularly vertebral artery dissection, and CMT. It is unclear whether this is due to lack of recognition of preexisting CD in these patients or due to trauma caused by CMT. Ultrasonography, computed tomographic angiography, and magnetic resonance imaging with magnetic resonance angiography are useful in the diagnosis of CD. Follow-up neuroimaging is preferentially done with noninvasive modalities, but we suggest that no single test should be seen as the gold standard.

Conclusions—CD is an important cause of ischemic stroke in young and middle-aged patients. CD is most prevalent in the upper cervical spine and can involve the internal carotid artery or vertebral artery. Although current biomechanical evidence is insufficient to establish the claim that CMT causes CD, clinical reports suggest that mechanical forces play a role in a considerable number of CDs and most population controlled studies have found an association between CMT and VAD stroke in young patients. Although the incidence of CMT-associated CD in patients who have previously received CMT is not well established, and probably low, practitioners should strongly consider the possibility of CD as a presenting symptom, and patients should be informed of the statistical association between CD and CMT prior to undergoing manipulation of the cervical spine.

Leg length

Journal of Acupuncture and Tuina Science
July 2014, Volume 12, Issue 4, pp 241-245

Tuina for leg length discrepancy and lumbosacral pain due to sacroiliac joint subluxation

- Zhao-xing Zhang,
- Hong Zhu,
- Rui-hui Wang,
- Xu Du,
- Hong-yan Qu

Abstract

Objective

To observe the clinical effect of tuina reduction manipulation on leg length discrepancy and lumbosacral pain due to sacroiliac joint subluxation.

Methods

A total of 60 eligible cases were randomly allocated into an observation group and a control group, 30 in each group. Cases in the observation group were treated with conventional tuina plus reduction manipulation of sacroiliac joint subluxation; whereas cases in the control group were treated with conventional tuina plus acupuncture. The clinical effects were observed after 10 times of treatment. In addition, the relapse rates were observed 2 months after treatment.

Results

The total effective rate in the observation group was 80.0%, versus 50.0% in the control group, showing a statistically significant difference ($P<0.05$). The relapse rate of lumbosacral pain in the observation group was 12.5%, versus 66.7% in the control group, showing a statistically significant difference ($P<0.01$). The relapse rate of leg length discrepancy in the observation group was 16.7%, versus 80.0% in the control group, showing a statistically significant difference ($P<0.01$).

Conclusion

Tuina reduction manipulation can obtain substantial therapeutic effect for leg length discrepancy and lumbosacral pain due to sacroiliac joint subluxation, coupled with a low relapse rate.

STM

Evidence-Based Complementary and Alternative Medicine

Volume 2014 (2014), Article ID 480956, 11 pages

<http://dx.doi.org/10.1155/2014/480956>

Review Article

Adverse Events of Massage Therapy in Pain-Related Conditions: A Systematic Review

Ping Yin,¹ Ningyang Gao,² Junyi Wu,¹ Gerhard Litscher,³ and Shifen Xu¹

Academic Editor: Huang-Ping Yu

Copyright © 2014 Ping Yin et al. This is an open access article distributed under the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Purpose: Pain-related massage, important in traditional Eastern medicine, is increasingly used in the Western world. So the widening acceptance demands continual safety assessment. This review is an evaluation of the frequency and severity of adverse events (AEs) reported mainly for pain-related massage between 2003 and 2013.

Methods: Relevant all-languages reports in 6 databases were identified and assessed by two coauthors.

Findings: During the 11-year period, 40 reports of 138 AEs were associated with massage. Author, year of publication, country of occurrence, participant related (age, sex) or number of patients affected, the details of manual therapy, and clinician type were extracted. Disc herniation, soft tissue trauma, neurologic compromise, spinal cord injury, dissection of the vertebral arteries, and others were the main complications of massage. Spinal manipulation in massage has repeatedly been associated with serious AEs especially.

Conclusions: Clearly, massage therapies are not totally devoid of risks. But the incidence of such events is low.

Massage chronic C spine

J Manipulative Physiol Ther. 2014 Aug 6.

Short Term Effects of Classic Massage Compared to Connective Tissue Massage on Pressure Pain Threshold and Muscle Relaxation Response in Women With Chronic Neck Pain: A Preliminary Study.

Bakar Y¹, Sertel M², Oztürk A³, Yümin ET², Tatarlı N⁴, Ankaralı H⁵.

Abstract

OBJECTIVE:

The purpose of this study was to evaluate the short-term effects of classic massage (CM) and connective tissue massage (CTM) on pressure pain threshold and muscle relaxation response in women with chronic neck pain.

METHODS:

Participants included 45 female volunteers (ages between 25 and 45 years) presenting to the Köroglu State Hospital Neurosurgery Polyclinic who had experienced neck pain for 3 to 6 months. The volunteers were randomly assigned to 2 groups (CM or CTM to the thoracic spine and the neck). Each treatment was carried out for 1 session. Outcome measures were obtained before and after treatment, which included pressure pain threshold that was measured with an algometer and muscle relaxation response that was evaluated with electromyography biofeedback (EMG-BF).

RESULTS:

Pressure pain threshold of the sternocleidomastoid muscle was significantly different for the CM ($P < .05$) group. The EMG-BF values were significantly different for the CTM group ($P < .05$). Comparing the results of CM and CTM, EMG-BF averages favored the CTM group ($P < .05$).

CONCLUSION:

For the group of women with chronic neck pain that were included in this study, 1 treatment of CTM demonstrated relaxation responses and 1 treatment of CM demonstrated pain reduction.

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KEYWORDS:

Massage; Neck Pain

PMID: 25108749

Muscles

Eccentric strength

Med Sci Sports Exerc. 2014 Aug 18.

Eccentric Hamstring Strength and Hamstring Injury Risk in Australian Footballers.

Opar DA¹, Williams MD, Timmins RG, Hickey J, Duhig SJ, Shield AJ.

Abstract

PURPOSE:

Is eccentric hamstring strength and between limb imbalance in eccentric strength, measured during the Nordic hamstring exercise, a risk factor for hamstring strain injury (HSI)?

METHODS:

Elite Australian footballers (n=210) from five different teams participated. Eccentric hamstring strength during the Nordic was taken at the commencement and conclusion of preseason training and in season. Injury history and demographic data were also collected. Reports on prospectively occurring HSIs were completed by team medical staff. Relative risk (RR) was determined for univariate data and logistic regression was employed for multivariate data.

RESULTS:

Twenty-eight HSIs were recorded. Eccentric hamstring strength below 256N at the start of preseason and 279N at the end of preseason increased risk of future HSI 2.7 (relative risk, 2.7; 95% confidence interval, 1.3 to 5.5; p = 0.006) and 4.3 fold (relative risk, 4.3; 95% confidence interval, 1.7 to 11.0; p = 0.002) respectively. Between limb imbalance in strength of greater than 10% did not increase the risk of future HSI. Univariate analysis did not reveal a significantly greater relative risk for future HSI in athletes who had sustained a lower limb injury of any kind within the last 12 months. Logistic regression revealed interactions between both athlete age and history of HSI with eccentric hamstring strength, whereby the likelihood of future HSI in older athletes or athletes with a history of HSI was reduced if an athlete had high levels of eccentric strength.

CONCLUSION:

Low levels of eccentric hamstring strength increased the risk of future HSI. Interaction effects suggest that the additional risk of future HSI associated with advancing age or previous injury was mitigated by higher levels of eccentric hamstring strength.

PMID: 25137368

Hamstring tears

Am J Sports Med. 2014 Jul 29. pii: 0363546514541540.

Platelet-Rich Plasma Injections for the Treatment of Hamstring Injuries: A Randomized Controlled Trial.

A Hamid MS1, Mohamed Ali MR2, Yusof A3, George J4, Lee LP5.

Abstract

BACKGROUND:

A hamstring injury is one of the most common types of injury affecting athletes. Despite this, the optimal management of hamstring muscle injuries is not yet defined. The effect of autologous platelet-rich plasma (PRP) therapy on the recovery of hamstring injuries is unclear.

PURPOSE:

To investigate the effect of a single PRP injection in the treatment of grade 2 hamstring muscle injuries.

STUDY DESIGN:

Randomized controlled trial; Level of evidence, 2.

METHODS:

Twenty-eight patients diagnosed with an acute hamstring injury were randomly allocated to autologous PRP therapy combined with a rehabilitation program or a rehabilitation program only. The primary outcome of this study was time to return to play. In addition, changes in pain severity and pain interference scores over time were examined.

RESULTS:

Patients in the PRP group achieved full recovery significantly earlier than controls ($P = .02$). The mean time to return to play was 42.5 ± 20.6 days in the control group and 26.7 ± 7.0 days in the PRP group. Significantly lower pain severity scores were observed in the PRP group throughout the study. However, no significant difference in the pain interference score was found between the 2 groups.

CONCLUSION:

A single autologous PRP injection combined with a rehabilitation program was significantly more effective in treating hamstring injuries than a rehabilitation program alone.

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KEYWORDS:

management; muscle injury; platelet-rich plasma (PRP); return to play

Exercise

Balance training

Clin Rehabil. 2014 Aug 20. pii: 0269215514544983.

Balance training with multi-task exercises improves fall-related self-efficacy, gait, balance performance and physical function in older adults with osteoporosis: a randomized controlled trial.

Halvarsson A¹, Franzén E², Ståhle A².

Abstract

OBJECTIVE:

To evaluate the effects of a balance training program including dual- and multi-task exercises on fall-related self-efficacy, fear of falling, gait and balance performance, and physical function in older adults with osteoporosis with an increased risk of falling and to evaluate whether additional physical activity would further improve the effects.

DESIGN:

Randomized controlled trial, including three groups: two intervention groups (Training, or Training+Physical activity) and one Control group, with a 12-week follow-up.

SETTING: Stockholm County, Sweden.

PARTICIPANTS: Ninety-six older adults, aged 66-87, with verified osteoporosis.

INTERVENTIONS:

A specific and progressive balance training program including dual- and multi-task three times/week for 12 weeks, and physical activity for 30 minutes, three times/week.

MAIN MEASURES:

Fall-related self-efficacy (Falls Efficacy Scale-International), fear of falling (single-item question - 'In general, are you afraid of falling?'), gait speed with and without a cognitive dual-task at preferred pace and fast walking (GAITRite®), balance performance tests (one-leg stance, and modified figure of eight), and physical function (Late-Life Function and Disability Instrument).

RESULTS:

Both intervention groups significantly improved their fall-related self-efficacy as compared to the controls ($p \leq 0.034$, 4 points) and improved their balance performance. Significant differences over time and between groups in favour of the intervention groups were found for walking speed with a dual-task ($p=0.003$), at fast walking speed ($p=0.008$), and for advanced lower extremity physical function ($p=0.034$).

CONCLUSIONS:

This balance training program, including dual- and multi-task, improves fall-related self-efficacy, gait speed, balance performance, and physical function in older adults with osteoporosis.

KEYWORDS: Balance; elderly; falling; gait; osteoporosis

PMID: 25142277

KinesioTape and strength

J Sci Med Sport. 2014 Jun 27. pii: S1440-2440(14)00125-X. doi: 10.1016/j.jsams.2014.06.014.

Effects of Kinesio® taping on skeletal muscle strength-A meta-analysis of current evidence.

Csapo R1, Alegre LM2.

Abstract

OBJECTIVES:

The purpose of this study was to test whether certain applications of Kinesio tapes might facilitate contraction and increase muscle strength in healthy adults.

DESIGN:

A meta-analysis of studies investigating the efficacy of Kinesio tapes application was performed.

METHODS:

The scientific databases Pubmed and Google Scholar were systematically searched for appropriate articles. Descriptive statistics were extracted to calculate measures of effect size (Pearson's r) and estimate the overall population effect. The methodological quality of the included studies was assessed using a specific quality appraisal tool. In addition, the included studies were grouped according to the muscle groups examined, to test whether Kinesio tapes effects were dependent on the area of application.

RESULTS:

A total of 19 studies, comprising data of 530 subjects and 48 pairwise comparisons of muscle strength were included. The methodological quality of these studies ranged from moderate to good. While substantial variability of individual effect sizes was observed, the overall population effect ($r=0.05$, CI: -0.23 to 0.34) suggests that, on average, the potential to increase strength by application of Kinesio tapes is negligible. Comparisons between studies grouped by the muscle groups examined showed that the effects of Kinesio tapes are not muscle-group dependent.

CONCLUSIONS:

While the application of Kinesio tapes may have some therapeutic benefits, the usage of these tapes does not promote strength gains in healthy adults.

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KEYWORDS:

Athletic performance; Muscle power; Neuromuscular facilitation; Physiotherapy

Posture

Flexion relaxation phenomenon

J Manipulative Physiol Ther. 2014 Aug 7.

Quantification of the Lumbar Flexion-Relaxation Phenomenon: Comparing Outcomes of Lumbar Erector Spinae and Superficial Lumbar Multifidus in Standing Full Trunk Flexion and Slumped Sitting Postures.

Schinkel-Ivy A¹, Nairn BC¹, Drake JD².

Abstract

OBJECTIVE:

The purpose of this study was to identify differences in flexion-relaxation outcomes in asymptomatic participants, with respect to both flexion-relaxation phenomenon (FRP) occurrence and spinal onset angles, as a function of posture and choice of muscle being examined.

METHODS:

This was a cross-sectional study in a laboratory setting. Thirty asymptomatic participants performed standing full trunk flexion and slumped sitting postures while activation levels of the lumbar erector spinae and superficial lumbar multifidus were monitored. Two thresholds were used to define whether FRP was present in each muscle and, if present, at what trunk flexion angle it occurred. These outcomes were compared descriptively between muscles and between postures.

RESULTS:

Most participants displayed FRP in both muscles during standing full flexion; occurrences were more variable in slumped sitting. On average, FRP during standing full flexion and slumped sitting occurred at approximately 80% and 52% of participants' maximum flexion value, respectively. Variability in the slumped sitting onset angles was greater than that in standing full flexion.

CONCLUSION:

Outcomes for FRP during standing full flexion in asymptomatic participants appeared to be more robust and were not affected by the choice of either lumbar erector spinae or superficial lumbar multifidus. Conversely, during slumped sitting, FRP occurrence varied substantially depending on choice of muscle, although onset angles were relatively consistent between muscles. Although the choice of one muscle over the other may be warranted, it may be prudent to examine both muscles during FRP investigations in sitting postures, in order to fully characterize the behavior and activation patterns of the lumbar musculature.

KEYWORDS:

Electromyography; Low Back Pain; Methods; Muscles

PMID: 25109838

Scoliosis

Conservative care adolescents

Low rate of surgery in juvenile idiopathic scoliosis treated with a complete and tailored conservative approach: end-growth results from a retrospective cohort

Claudia Fusco, Sabrina Donzelli, Monia Lusini, Minnella Salvatore, Fabio Zaina and Stefano Negrini

Scoliosis 2014, **9**:12 doi:10.1186/1748-7161-9-12, Published: 18 August 2014

Abstract (provisional)

Background context: The main distinctive aspect of Juvenile Idiopathic Scoliosis (JIS) with respect to Adolescent Idiopathic Scoliosis (AIS) is the high risk of severe deformity and surgery. Approximately 70% of curves in patients with JIS progress and ultimately require surgery. There are presently very few studies with long-term follow-up of JIS and even fewer looking specifically at bracing Purpose To verify the effectiveness of a complete conservative treatment, including bracing and exercises, for JIS.

Study design/setting: Retrospective cohort observational study nested in a clinical prospective database of consecutive outpatients. Patient Sample Inclusion criteria: JIS, no previous treatment, all consecutive radiographies available from treatment start to end of growth (Risser sign 3). We found 30 patients, 27 females, 10 JIS type 1; mean age at first diagnosis was 7.8 +/-1.5 and mean treatment lasted 5.8 years. Cobb degrees 24.4+/-10degrees, with 7 cases >30degrees, and 2 > 45degrees. Outcome Measures Physiological measures. Radiographic and clinical data.

Methods: Treatment (exercises alone, or elastic-rigid-highly rigid braces plus exercises) was tailored and continuously changed according to Cobb degrees, individual preferences, anthropometric characteristics, pubertal spurt, remaining growth, rotation, hump, lumbar curve take-off, and imbalance. The SOSORT Guidelines for patients' management have been followed. Funding and Conflict of Interest: no.

Results: 33.3% (95% Confidence Interval 16.4-50.2%) of patients worsened over the years. At the end of growth, 6.6% (0-15.5%) had surgical deformities (>45degrees). We observed a good correction in the first years of treatment until pubertal growth spurt, when progression was usually noted and treatment changed increasing corrective forces (hours or rigidity of bracing). 23 cases were followed up until they had two consecutive radiographies showing Risser sign 5 and showed stability.

Conclusions: Conservative treatment initiated already in childhood may favorably change the natural history of JIS with the aim of reaching a curve as far as possible from surgical thresholds. Observation, physical exercises, braces can be useful tools in the hand of physicians, but they must be carefully utilized by a deep knowledge of JIS.

Sensory changes

European Spine Journal, August 2014, Date: 17 Aug 2014

Altered head orientation patterns in children with idiopathic scoliosis in conditions with sensory conflict

- P. N. Eijgelaar,
- F. H. Wapstra,
- E. Otten,
- A. G. Veldhuizen

Abstract

Purpose

Idiopathic scoliosis (IS) is the most common spinal deformity in adolescents. Defective postural equilibrium may be a contributing factor. The information of the three sensory systems combined enables the formation of a central representation of head position and body posture. Comparison of head angles of girls with and without scoliosis may result in a difference in head orientation.

Methods

25 girls with IS and 16 girls without scoliosis (NS) between the age of 10–16 years stand in a special constructed box on a roll-tilting platform (tilt -14° to $+14^{\circ}$).

Results

NS and IS subjects behave quite similarly if there is no sensory conflict, but if there is conflict, the differences between the two groups are greater, especially within the 13- to 14-year-old category.

Conclusions

The differences between groups for different age categories suggest that the process of development of sensory integration for estimation of verticality appears to be different for girls with scoliosis.

ATHLETICS

Heat stroke

J Am Coll Cardiol. 2014;64(5):463-469. doi:10.1016/j.jacc.2014.05.025
Original Investigation | August 2014

Life-Threatening Events During Endurance Sports: Is Heat Stroke More Prevalent Than Arrhythmic Death?

Lior Yankelson, MD, PhD[‡]; Ben Sadeh, MD^{*}; Liron Gershovitz, MD^{*}; Julieta Wertheim, MD[‡];

Karin Heller, MD[‡]; Pinchas Halpern, MD[‡]; Amir Halkin, MD^{*}; Arnon Adler, MD^{*}; Arie Steinvil,

MD^{*}; Sami Viskin, MD^{*}

Abstract

Background Two important causes of sudden death during endurance races are arrhythmic death and heat stroke. However, “arrhythmic death” has caught practically all the attention of the medical community whereas the importance of heat stroke is less appreciated.

Objectives The study sought to determine what percentage of life-threatening events during endurance races are due to heat stroke or cardiac causes.

Methods This retrospective study examined all the long distance popular races that took place in Tel Aviv from March 2007 to November 2013. The number of athletes at risk was known. The number of athletes developing serious sport-related events and requiring hospitalization was known. Life-threatening events were those requiring mechanical ventilation and hospitalization in intensive care units.

Results Overall, 137,580 runners participated in long distance races during the study period. There were only 2 serious cardiac events (1 myocardial infarction and 1 hypotensive supraventricular tachyarrhythmia), neither of which were fatal or life threatening. In contrast, there were 21 serious cases of heat stroke, including 2 that were fatal and 12 that were life threatening. One of the heat stroke fatalities presented with cardiac arrest without previous warning.

Conclusions In our cohort of athletes participating in endurance sports, for every serious cardiac adverse event, there were 10 serious events related to heat stroke. One of the heat stroke-related fatalities presented with unheralded cardiac arrest. Our results put in a different perspective the ongoing debate about the role of pre-participation electrocardiographic screening for the prevention of sudden death in athletes.

PAIN

PT and pain management

Phys Ther. 2014 Jun 5

Can Physical Therapists Deliver a Pain Coping Skills Program? An Examination of Training Processes and Outcomes.

Bryant C¹, Lewis P², Bennell KL³, Ahamed Y⁴, Crough D⁵, Jull GA⁶, Kenardy J⁷, Nicholas MK⁸, Keefe FJ⁹.

Abstract

BACKGROUND:

Physical therapists are well established as providers of treatments for common, painful, and disabling conditions, such as knee osteoarthritis (OA). Thus, they are well placed to deliver treatments that integrate physical and psychosocial elements. Attention is usually given to outcomes of such programs, but few studies have examined the processes and outcomes of training physical therapists to deliver such treatments.

OBJECTIVE:

The aim of this study was to describe the processes in training physical therapists: (1) to deliver a standardized pain coping skills treatment and (2) to evaluate the effectiveness of that training.

DESIGN:

This study was an analysis of data relating to therapist performance in a randomized clinical trial.

METHODS:

Eleven physical therapists were trained to deliver a 10-session pain coping skills training program for people with knee OA as part of a randomized controlled trial (N=222). The initial training was provided in a workshop format and included extensive, ongoing supervision by a psychologist and rigorous use of well-defined performance criteria to assess competence. Adherence to the program, ratings of performance, and use of advanced skills were all measured against these criteria in a sample (n=74, 10%) of the audio recordings of the intervention sessions.

RESULTS:

Overall, the physical therapists achieved a very high standard of treatment delivery, with 96.6% adherence to the program and mean performance ratings all in the satisfactory range. These results were maintained throughout the intervention and across all sessions.

LIMITATIONS:

Only 10% of the delivered sessions were analyzed, and the physical therapists who took part in the study were a self-selected group.

CONCLUSIONS:

This study demonstrated that a systematic approach to training and accrediting physical therapists to deliver a standardized pain coping skills program can result in high and sustained levels of adherence to the program. Training fidelity was achieved in this group of motivated clinicians, but the supervision provided was time intensive. The data provide a promising indicator of greater potential for psychologically informed practice to be a feature of effective health care.

White matter impact of pain

The Journal of Pain DOI: <http://dx.doi.org/10.1016/j.jpain.2014.08.002>

White matter involvement in chronic musculoskeletal pain

Gregory Lieberman, Marina Shpaner, Richard Watts, Trevor Andrews, Christopher G. Filippi, Marcia Davis, Magdalena R. Naylor

Abstract

Purpose: There is emerging evidence that chronic musculoskeletal pain is associated with anatomical and functional abnormalities in gray matter. However, little research has investigated the relationship between chronic musculoskeletal pain and white matter (WM).

Methods: In this study, we used whole-brain tract-based spatial statistics, and region-of-interest analyses of diffusion tensor imaging (DTI) data to demonstrate that patients with chronic musculoskeletal pain exhibit several abnormal WM integrity as compared to healthy controls.

Findings: Chronic musculoskeletal pain was associated with lower fractional anisotropy (FA) in the splenium of corpus callosum, and left cingulum adjacent to the hippocampus. Patients also had higher radial diffusivity (RD) in the splenium, right anterior and posterior limbs of internal capsule, external capsule, superior longitudinal fasciculus, and cerebral peduncle. Patterns of axial diffusivity (AD) varied: patients exhibited lower AD in the left cingulum adjacent to the hippocampus and higher AD in the anterior limbs of internal capsule, and in the right cerebral peduncle. Several correlations between diffusion metrics and clinical variables were also significant at a $p < 0.01$ level: FA in the left uncinate fasciculus correlated positively with Total Pain Experience and typical levels of pain severity. AD in the left anterior limb of internal capsule and left uncinate fasciculus were correlated with Total Pain Experience and typical pain level. Positive correlations were also found between AD in the right uncinate and both Total Pain Experience and Pain Catastrophizing.

Conclusions: These results demonstrate that WM abnormalities play a role in chronic musculoskeletal pain; either as a cause, predisposing factor, consequence, or compensatory adaptation.

Perspective: This article demonstrates that patients with chronic musculoskeletal pain exhibit altered metrics of diffusion in the brain's white matter as compared to healthy volunteers and that some of these differences are directly related to symptom severity.

Pain and insomnia

Rheumatology (Oxford). 2014 Aug 14. pii: keu283.

Impact of musculoskeletal pain on insomnia onset: a prospective cohort study.

Tang NK¹, McBeth J², Jordan KP², Blagojevic-Bucknall M², Croft P², Wilkie R².

Abstract**OBJECTIVE:**

Pain, the most common manifestation of rheumatological conditions, is highly prevalent among older adults, with worse health outcomes found in those with co-morbid insomnia. Proactive prevention of insomnia may reduce the overall disease burden of pain and rheumatological conditions. To inform such development, this study examined the role of pain, physical limitation and reduced social participation in predicting and mediating insomnia onset.

METHODS:

A prospective cohort study was conducted involving 6676 individuals ≥ 50 years of age who completed questionnaires at baseline and a 3-year follow-up. Participants were classified into none, some and widespread pain according to the ACR criteria. Logistic regression was used to examine the relationship between baseline pain and insomnia onset at 3 years. Path analysis was used to test for the mediating role of physical limitation and social participation restriction.

RESULTS:

Some [adjusted odds ratio (AOR) 1.57 (95% CI 1.15, 2.13)] and widespread [2.13 (1.66, 3.20)] pain increased the risk of insomnia onset at 3 years, after adjusting for age, gender, socio-economic class, education, anxiety, depression, sleep and co-morbidity at baseline. The combination of physical limitation and reduced social participation explained up to 68% of the effect of some pain on insomnia onset and 66% of the effect of widespread pain on insomnia onset.

CONCLUSIONS:

There was a dose-response association between the extent of pain at baseline and insomnia onset at 3 years that was substantially mediated by physical limitation and reduced social participation. Targeting physical limitation and social participation in older people with pain may buffer co-morbid insomnia, reducing the overall disease burden.

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KEYWORDS:

cohort study; insomnia; musculoskeletal; physical function; sleep; social participation; widespread pain

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Familial chronic pain

BMC Public Health. 2014 Aug 5;14:797. doi: 10.1186/1471-2458-14-797.

Parental chronic pain in relation to chronic pain in their adult offspring: family-linkage within the HUNT Study, Norway.

Lier R¹, Nilsen TI, Mork PJ.

Abstract

BACKGROUND:

Little is known about the association between parental chronic musculoskeletal pain (CMP) and occurrence of CMP in the adult offspring. The main objective of this study was to assess the parent-offspring association of CMP, and also to examine possible modifying effects of age and sex.

METHODS:

The study includes 11 248 parent-offspring trios from the Norwegian HUNT Study with information on parental CMP obtained in 1995-97 and offspring CMP obtained in 2006-08. Logistic regression was used to calculate adjusted odds ratios (ORs) for offspring CMP associated with parental CMP.

RESULTS:

Maternal and paternal CMP was associated with 20-40% increased odds of CMP in sons and daughters. Both sons and daughters had an OR of 1.6 (95% CI 1.4 to 1.9) when both parents reported CMP, compared to when none of the parents had CMP. Restricting the analyses to parental CMP that was associated with limited work ability and leisure time activity did not change the strength of the association. Further, analyses stratified by parental age ± 65 years showed no clear difference in the estimated associations, and there was no evidence of interaction for parental sex ($P \geq 0.39$) or offspring age ± 40 years ($P \geq 0.26$).

CONCLUSIONS:

This large family-linkage study show that maternal and paternal CMP are positively associated with CMP in the adult offspring, irrespective of parental and offspring age, and that the associations are strongest when both parents have CMP. Although the high prevalence of CMP in both parents and offspring suggests that not all cases are clinically relevant, the results suggest that chronic pain has a heritable component.

PMID: 25096408

Fibromyalgia

Management

More ubiquitous effects from non-pharmacologic than from pharmacologic treatments for fibromyalgia syndrome: A meta-analysis examining six core symptoms

European Journal of Pain, 08/20/2014 Review Article

Perrot S, et al.

Purpose: This study aimed to characterize and compare the efficacy profile on six fibromyalgia syndrome (FM) core symptoms associated with pharmacologic and non-pharmacologic treatments.

Methods: We screened PubMed, Embase and the Cochrane Library for FM articles from 1990 to September 2012 to analyse randomized controlled trials comparing pharmacologic or non-pharmacologic treatments to placebo or sham. Papers including assessments of at least 2 of the 6 main FM symptom domains – pain, sleep disturbance, fatigue, affective symptoms (depression/anxiety), functional deficit and cognitive impairment – were selected for analysis.

Findings: Studies exploring pharmacologic approaches ($n = 21$) were mainly dedicated to treating a small number of dimensions, mostly pain. They were of good quality but were not prospectively designed to simultaneously document efficacy for the management of multiple core FM symptom domains. Only amitriptyline demonstrated a significant effect on as many as three core FM symptoms, but it exhibited many adverse effects and was subject to early tachyphylaxis. Studies involving non-pharmacologic approaches ($n = 64$) were typically of poorer quality but were more often dedicated to multidimensional targets. Pool therapy demonstrated significant effects on five symptom domains, repetitive transcranial magnetic stimulation on four domains, balneotherapy on three domains and exercise, cognitive behaviour therapy and massage on two domains each. Differences between pharmacologic and non-pharmacologic approaches may be related to different modes of action, tolerability profiles and study designs.

Conclusions: Very few drugs in well-designed clinical trials have demonstrated significant relief for multiple FM symptom domains, whereas non-pharmacologic treatments with weaker study designs have demonstrated multidimensional effects. Future therapeutic trials for FM should prospectively examine each of the core domains and should attempt to combine pharmacologic and non-pharmacologic therapies in well-designed clinical trials.

NUTRITION/VITAMINS

Soda and bones

Am J Clin Nutr. 2014 Aug 6. pii: ajcn.083352.

Soda consumption and risk of hip fractures in postmenopausal women in the Nurses' Health Study.

Fung TT, Arasaratnam MH, Grodstein F, Katz JN, Rosner B, Willett WC, Feskanich D.

Abstract

BACKGROUND:

The frequency of soda consumption remains high in the United States. Soda consumption has been associated with poor bone health in children, but few studies have examined this relation in adults, and to our knowledge, no study has examined the relation of soda consumption with risk of hip fractures.

OBJECTIVE:

We examined the association of soda, including specific types of soda, and risk of hip fracture in postmenopausal women.

DESIGN:

An analysis was conducted in postmenopausal women from the Nurses' Health Study cohort (n = 73,572). Diet was assessed at baseline by using a semiquantitative food-frequency questionnaire and updated approximately every 4 y. In ≤ 30 y of follow-up, we identified 1873 incident hip fractures. We computed RRs for hip fractures by the amount of soda consumption by using Cox proportional hazards models with adjustment for potential confounders.

RESULTS:

In multivariable models, each additional serving of total soda per day was associated with a significant 14% increased risk of hip fracture (RR: 1.14; 95% CI: 1.06, 1.23). The attributable risk in our cohort for total soda consumption was 12.5%. Risk was significantly elevated in consumers of both regular soda (RR: 1.19; 95% CI: 1.02, 1.38) and diet soda (RR: 1.12; 95% CI: 1.03, 1.21) and also did not significantly differ between colas and noncolas or sodas with or without caffeine. The association between soda and hip fractures did not differ by body mass index or diagnosis of diabetes.

CONCLUSION:

Increased soda consumption of all types may be associated with increased risk of hip fracture in postmenopausal women; however, a clear mechanism was not apparent on the basis of these observational data.

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PMID: 25099544

Supplementation and inflammation

Complementary Therapies in Medicine DOI: <http://dx.doi.org/10.1016/j.ctim.2014.07.004>

Effects of *Elaeagnus angustifolia* L. supplementation on serum levels of inflammatory cytokines and matrix metalloproteinases in females with knee osteoarthritis

Zeinab Nikniaz

Summary

Objective

In an attempt to investigate new strategies aimed at reducing inflammation in osteoarthritis, the anti-inflammatory effect of *Elaeagnus angustifolia* L. as a complementary treatment was evaluated in females with knee osteoarthritis.

Method

In this clinical trial, 90 females with mild to moderate osteoarthritis were assigned to two intervention and one placebo groups. In addition to the conventional therapy, the patients in intervention groups received 15 g/day of *E. angustifolia* L. medulla and whole fruit powders respectively for 8 weeks. The levels of tumor necrosis factor-alpha (TNF- α), interleukine-1 β (IL-1 β), interleukine-10 (IL-10), matrix metalloproteinase-1 (MMP-1) and -13 (MMP-13) were measured with human ELISA kits. Paired *t*-test and ANOVA were used for statistical analysis.

Results

The statistically significant decrease was observed in the mean levels of serum TNF- α in the medulla (0.004) and whole fruit (0.001) groups after 8 weeks of supplementation. In contrast to the placebo group, there was a significant rise in the mean levels of serum IL-10 in medulla (*p*-value = 0.01) and whole fruit groups (*p*-value = 0.009) at the end of study. The interventions resulted in significant decrease in the mean levels of serum MMP-1 in the medulla (0.001) and whole fruit (0.002) groups. After the interventions, no significant changes were observed in the serum IL-1 β and MMP-13 levels.

Conclusion

Daily supplementation with *E. angustifolia* L. in both forms of medulla and whole fruit powders appeared to be effective for decreasing inflammatory cytokines (TNF- α and MMP-1) and enhancing anti-inflammatory cytokines (IL-10).

PHARMACOLOGY

Pain killers and death

Death by prescription painkiller

McGill University News, 06/19/2014

Purpose: First major review provides evidence of sharp increase in deaths from painkillers in U.S. and Canada.

Methods: The number of deaths involving commonly prescribed painkillers is higher than the number of deaths by overdose from heroin and cocaine combined, according to researchers at McGill University. In a first-of-its-kind review of existing research, the McGill team has put the spotlight on a major public health problem: the dramatic increase in deaths due to prescribed painkillers, which were involved in more than 16,000 deaths in 2010 in the U.S. alone.

Findings: Currently, the U.S and Canada rank #1 and #2 in per capita opioid consumption. “We wanted to find out why thousands of people in the U.S and Canada are dying from prescription painkillers every year, and why these rates have climbed steadily during the past two decades,” says King, “We found evidence for at least 17 different determinants of increasing opioid-related mortality, mainly, dramatically increased prescription and sales of opioids; increased use of strong, long-acting opioids like Oxycontin and methadone; combined use of opioids and other (licit and illicit) drugs and alcohol; and social and demographic factors.” “We found little evidence that Internet sales of pharmaceuticals and errors by doctors and patients – factors commonly cited in the media – have played a significant role,” Prof. King adds.

Conclusions: The results of this research are published in the American Journal of Public Health.