

ABSTRACTS

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2. LBP

CBT and exercise

Eur J Pain. 2015 Jul 22. doi: 10.1002/ejp.756.

Group-based task-oriented exercises aimed at managing kinesiophobia improved disability in chronic low back pain.

Monticone M¹, Ambrosini E^{1,2}, Rocca B¹, Cazzaniga D¹, Liquori V¹, Foti C³.

Author information

Abstract

BACKGROUND:

There are still doubts concerning the clinical impact of multidisciplinary cognitive behavioural rehabilitation programmes conducted in group-based settings and about their long-term effects on subjects with chronic low back pain (CLBP). This randomized, parallel-group superiority-controlled trial aimed at evaluating the effect of such a programme on disability, kinesiophobia, catastrophizing, pain and quality of life in CLBP.

METHODS:

One hundred and fifty patients were randomly assigned to a 5-week group-based multidisciplinary programme of task-oriented exercises integrated with cognitive behavioural therapy mainly aimed at managing kinesiophobia (experimental group, 75 subjects) or group-based traditional exercises (control group, 75 subjects). Before treatment, 5 weeks later (post-treatment), 12 and 24 months after the end of treatment, the Oswestry Disability Index, the Tampa Scale for Kinesiophobia, the Pain Catastrophizing Scale, a pain Numerical Rating Scale and the Short Form Health Survey were assessed. A linear mixed model for repeated measures was used for each outcome measure.

RESULTS:

Significant group ($p < 0.001$), time ($p < 0.001$) and time-by-group interaction ($p < 0.001$) effects were found on disability, with a between-group difference (95% confidence interval) after training in favour of the experimental group of -10 (-12; -8). Also kinesiophobia, catastrophizing, pain, and quality of life improved to a significantly greater extent in the experimental group. The improvements of the experimental group were maintained at follow-ups.

CONCLUSION:

This light group-based multidisciplinary cognitive behavioural rehabilitation programme was superior to traditional exercises in reducing disability, kinesiophobia, catastrophizing, and enhancing the quality of life of subjects with CLBP. The effects lasted for at least 2 years after the end of the intervention.

PMID:26198386

Red Flags

Phys Ther. 2015 Jul 16.

Prevalence and Red Flags Regarding Specified Causes of Back Pain in Older Adults Presenting in General Practice.

Enthoven WT¹, Geuze J², Scheele J³, Bierma-Zeinstra SM⁴, Bueving HJ⁵, Bohnen AM⁶, Peul WC⁷, van Tulder MW⁸, Berger MY⁹, Koes BW¹⁰, Luijsterburg PA¹¹.

Author information

Abstract

BACKGROUND:

In a small proportion of patients experiencing unspecified back pain a specified underlying pathology is present.

OBJECTIVE:

To identify the prevalence of physician-specified causes of back pain and to assess associations between red flags and vertebral fractures, as diagnosed by the patients' GP, in older adults presenting with back pain in general practice.

METHODS:

The BACE study is a prospective cohort study. Patients (aged >55 years) with back pain were included when consulting their general practitioner (GP). A questionnaire, physical examination, and heel bone densitometry were performed and determined back pain and patient characteristics, including red flags. Patients received an X-ray and reports were sent to the patients' GP. The final diagnoses established at 1 year were collected from the GPs patient registry.

RESULTS:

Of the 669 patients included, 6% were diagnosed during 1 year follow-up with a serious underlying pathology. Most of these patients (n=33, 5%) were diagnosed with a vertebral fracture. Multivariable regression analysis showed that age \geq 75 years, trauma, osteoporosis, a back pain intensity score \geq 7, and thoracic pain were associated with a higher chance of getting the diagnosis of a vertebral fracture. Of these variables, trauma showed the highest positive predictive value for vertebral fracture of 0.25 (95%CI 0.09-0.41) and a positive likelihood ratio of 6.2 (95% CI 2.8-13.5). A diagnostic prediction model including the five red flags did not increase these values.

LIMITATIONS:

Low prevalence of vertebral fractures could have led to findings by chance.

CONCLUSIONS:

In these older adults with back pain presenting in general practice 6% were diagnosed with serious pathology, mainly a vertebral fracture (5%). Four red flags were associated with the presence of vertebral fracture.

PMID: 26183589

Cognitive Functional Therapy

Phys Ther. 2015 Apr 30.

Cognitive Functional Therapy for Disabling Nonspecific Chronic Low Back Pain: Multiple Case-Cohort Study.

O'Sullivan K¹, Dankaerts W², O'Sullivan L³, O'Sullivan PB⁴.
Author information

Abstract

BACKGROUND:

Multiple dimensions across the biopsychosocial spectrum are relevant in the management of nonspecific chronic low back pain (NSCLBP). Cognitive functional therapy is a behaviorally targeted intervention that combines normalization of movement and abolition of pain behaviors with cognitive reconceptualization of the NSCLBP problem while targeting psychosocial and lifestyle barriers to recovery.

OBJECTIVE:

The purpose of this study was to examine the effectiveness of cognitive functional therapy for people with disabling NSCLBP who were awaiting an appointment with a specialist medical consultant.

DESIGN:

A multiple case-cohort study (n=26) consisting of 3 phases (A1-B-A2) was conducted.

METHODS:

Measurement phase A1 was a baseline phase during which measurements of pain and functional disability were collected on 3 occasions over 3 months for all participants. During phase B, participants entered a cognitive functional therapy intervention program involving approximately 8 treatments over an average of 12 weeks. Finally, phase A2 was a 12-month, no-treatment follow-up period. Outcomes were analyzed using repeated-measures analysis of variance or Friedman test (with post hoc Bonferroni correction) across 7 time intervals, depending on normality of data distribution.

RESULTS:

Statistically significant reductions in both functional disability and pain were observed immediately postintervention and were maintained over the 12-month follow-up period. These reductions reached clinical significance for both disability and pain. Secondary psychosocial outcomes, including depression, anxiety, back beliefs, fear of physical activity, catastrophizing, and self-efficacy, were significantly improved after the intervention.

LIMITATIONS:

The study was not a randomized controlled trial. Although primary outcome data were self-reported, the assessor was not blinded.

CONCLUSIONS:

These promising results suggest that cognitive functional therapy should be compared with other conservative interventions for the management of disabling NSCLBP in secondary care settings in large randomized clinical trials.

PMID:25929536

3. DISC

Foraminal space

Spine (Phila Pa 1976). 2015 Jul 15;40(14):E814-22. doi: 10.1097/BRS.0000000000000959.

Three-Dimensional Computed Tomography-Based Specimen-Specific Kinematic Model for Ex Vivo Assessment of Lumbar Neuroforaminal Space.

Havey RM¹, Goodsitt J, Khayatzadeh S, Muriuki M, Potluri T, Voronov LI, Lomasney LM, Patwardhan AG.
Author information

Abstract

STUDY DESIGN: Cadaveric study to accurately measure lumbar neuroforaminal area and height throughout the flexion-extension range of motion (ROM).

OBJECTIVE: Create a new computed tomography (CT)-based specimen-specific model technique to provide insight on the effects of kinematics on lumbar neuroforamen morphology during flexion-extension ROM.

SUMMARY OF BACKGROUND DATA: Nerve root compression is a key factor in symptomatic progression of degenerative disc disease because these changes directly affect neuroforaminal area. Traditional techniques to evaluate the neuroforamen suffer from poor accuracy, have inherent limitations, and fail to provide data throughout the ROM.

METHODS: Six cadaveric specimens (L1-sacrum) were instrumented with radiopaque spheres and CT scanned. 3-Dimensional reconstructions were made of each vertebra and the sphere locations determined. During kinematic testing, the spheres were located in relation to optoelectronic targets attached to each vertebra. The result was a 3-dimensional representation of the specimen's CT reconstruction moving in response to experimental data. Bony contours of the L2-L3 and L4-L5 neuroforamen were digitized producing continuous neuroforaminal area and height data throughout the ROM.

RESULTS: Neuroforaminal area and height linearly increased in flexion and decreased in extension. There was significant correlation between flexion-extension motion and percent change in area (L2-L3: 3.1%/deg, R = 0.94, L4-L5: 2.5%/deg, R = 0.90) and neuroforaminal height (L2-L3: 2.1%/deg, R = 0.95, L4-L5: 1.6%/deg, R = 0.93). Regression analysis showed that the ratio between neuroforaminal height and area is at least 1:1.5 such that a 100% increase in height is associated with an area increase of more than 150%.

CONCLUSION: This is the first study to measure lumbar neuroforaminal area and height throughout flexion-extension ROM. The CT-based specimen-specific model technique can accurately evaluate the effect of kinematics on morphological features of the spine. The demonstrated increase in neuroforaminal dimension in flexion is consistent with treatment modalities used in clinical therapies to relieve radicular symptoms.

PMID:25943082

5. SURGERY

Recovery from surgery

Eur Spine J. 2015 Jul 5.

Influence of gender on patient-oriented outcomes in spine surgery.

Pochon L¹, Kleinstück FS, Porchet F, Mannion AF.
Author information

Abstract

PURPOSE:

Few studies have examined gender differences in patient-oriented health-related quality of life before and after spine surgery. This study examined the influence of gender on baseline status and 1-year postoperative outcomes in a large series of patients undergoing surgery for different degenerative spinal disorders.

METHODS:

The study included 1518 patients [812 men and 706 women; mean (SD) age 61.4 ± 16.2 years], with three different pathologies (disc herniation, degenerative spondylolisthesis, or spinal stenosis), treated with specified surgical approaches. Preoperatively and 12 months postoperatively, patients completed the multidimensional Core Outcome Measures Index (COMI). Medical history, surgical details and perioperative complications were documented with the Eurospine "Spine Tango" Surgery 2006 form.

RESULTS:

Preoperatively and for all three pathologies, women had significantly ($p < 0.05$) worse COMI-scores than men, especially for the sub-domains "leg/buttock pain", "dominant pain intensity", and "general quality of life"; the change in the COMI sum score 12 months postoperatively showed no significant gender differences for any pathology ($p > 0.05$). 71.3 % males and 72.9 % females achieved the minimal clinically important change score (MCIC; 2.2 point reduction) for the COMI. Controlling for potential cofounders (preoperative COMI, ASA, complications, pathology), gender showed no significant association with the failure to achieve MCIC.

CONCLUSIONS:

This results show that women do not differ significantly from men regarding their postoperative outcome, even though they present with a worse preoperative status. The management of a patient's condition should not differ depending on their gender, since both men and women are able to improve to a similar extent.

PMID:26143123

Adjacent degeneration following fusion

Spine (Phila Pa 1976). 2015 Jul 15;40(14):E831-41. doi: 10.1097/BRS.0000000000000917.

Adjacent Segment Disease After Posterior Lumbar Interbody Fusion: Based on Cases With a Minimum of 10 Years of Follow-up.

Nakashima H¹, Kawakami N, Tsuji T, Ohara T, Suzuki Y, Saito T, Nohara A, Tauchi R, Ohta K, Hamajima N, Imagama S.

Author information

Abstract

STUDY DESIGN:

Retrospective case-controlled study.

OBJECTIVE:

To investigate the incidence of adjacent segment degeneration (ASD) and the associated risk factors during a period of at least 10 years after posterior lumbar interbody fusion (PLIF).

SUMMARY OF BACKGROUND DATA:

ASD is a problematic sequelae after spinal fusion surgery. Few long-term follow-up studies have investigated ASD after PLIF; thus, magnetic resonance imaging (MRI) data available for the evaluation of postoperative changes associated with ASD are limited.

METHOD:

One hundred one patients were retrospectively enrolled. The minimum follow-up was 10 years after surgery. Preoperative and postoperative (2, 5, and 10 yr after surgery) Radiographs and MRI images were evaluated. Disc height, vertebral slip, and intervertebral angle were examined on radiographical images. Disc degeneration and spinal stenosis on MRI images were evaluated. Risk factors for developing early-onset radiographical ASD were evaluated using a multivariate logistic regression analysis.

RESULT:

The degenerative changes in disc height, vertebral slip, and intervertebral angle on radiographs 10 years after surgery were found in 12, 36, and 17 cases, respectively, at the cranial-adjacent level and in 3, 6, and 11 cases, respectively, at the caudal-adjacent level. Increased disc degeneration and spinal stenosis worsening were observed in 62 and 68 cases, respectively, at the cranial-adjacent level and in 25 and 12 cases, respectively, at the caudal-adjacent level on MRI 10 years after surgery. Ten patients (9.9%) required reoperation, and 80% of revision surgeries were performed more than 5 years after the initial surgery. High pelvic incidence was a risk factor for developing early-onset radiographical ASD.

CONCLUSION:

The majority of the reoperations for ASD were performed more than 5 years after the initial lumbar fusion surgery, although the progression of radiographical ASD began in the early postoperative period. A high degree of pelvic incidence was a risk factor for developing early-onset radiographical ASD. Obtaining appropriate lumbar lordosis in PLIF is important for preventing ASD.

LEVEL OF EVIDENCE: 4.

PMID: 25839385

7. PELVIC ORGANS

Pregnancy/stem cells/exercise

Med Sci Sports Exerc. 2015 Jul 20.

Prenatal Maternal Physical Activity and Stem Cells in Umbilical Cord Blood.

Onoyama S¹, Qiu L, Low HP, Chang CI, Strohsnitter WC, Norwitz ER, Lopresti M, Edmiston K, Lee IM, Trichopoulos D, Lagiou P, Hsieh CC.

Author information

Abstract

PURPOSE:

Early life processes, through influence on fetal stem cells, affect postnatal and adult health outcomes. This study examines effects of physical activity before and during pregnancy on stem cell counts in umbilical cord blood.

METHODS:

We isolated mononuclear cells from umbilical cord blood samples from 373 singleton full-term pregnancies and quantified hematopoietic (CD34, CD34CD38, CD34c-kit), endothelial (CD34CD133, CD34CD133VEGFR2, CD34VEGFR2, and CD133VEGFR2), and putative breast (EpCAM, EpCAMCD49f, EpCAMCD49fCD117, CD49fCD24, CD24CD29, and CD24CD29CD49f) stem/progenitor cell subpopulations by flow cytometry. Information on physical activities before and during pregnancy was obtained from questionnaire. Weekly energy expenditure was estimated based on the metabolic equivalent task (MET) values.

RESULTS:

Pre-pregnancy vigorous exercise was associated positively with levels of the endothelial CD34CD133, CD34CD133VEGFR2, CD34VEGFR2, and CD133VEGFR2 progenitor cell populations ($p=0.02$, 0.01 , 0.001 , and 0.003 , respectively); the positive associations were observed in samples from the first births and those from the second or later births. Pre-pregnancy moderate and light exercise and light exercise during the first trimester were not significantly associated with any stem/progenitor cell population. Light exercise during the second trimester was positively associated with CD34VEGFR2 endothelial progenitor cells ($p=0.03$). In addition, levels of the EpCAMCD49f and CD49fCD24 breast stem cells were significantly lower among pregnant women who engaged in vigorous or moderate exercise during pregnancy ($p=0.05$ and 0.02 , respectively).

CONCLUSION:

Vigorous exercise before pregnancy increases endothelial progenitor cell numbers in umbilical cord blood and thus could potentially enhance the endothelial function and improve cardiovascular fitness in the offspring. Findings of a lower level of putative breast stem cell subpopulations could have implication on exercise and breast cancer prevention. Prenatal effects of exercise on fetal stem cells warrant further studies.

PMID: 26197028

Vulvodynia treatment

Australas J Dermatol. 2015 Jul 6. doi: 10.1111/ajd.12365.

Current concepts in vulvodynia with a focus on pathogenesis and pain mechanisms.

Thornton AM¹, Drummond C¹.

Author information

Abstract

Vulvodynia is a common and debilitating chronic pain syndrome characterised by neuropathic-type pain. Localised provoked vulvodynia is the most common type, followed by generalised unprovoked vulvodynia. Vulvodynia is a diagnosis of exclusion. The cause is unknown but current research suggests an underlying predisposition to increased sensitivity to pain and peripheral and central neural sensitisation. Musculoskeletal factors also play an important role. Vulvodynia has a significant impact on the quality of life, mood, functional ability and relationships of patients and their partners. It is highly associated with anxiety and depression. Treatment needs to follow a biopsychosocial model and be tailored to the patient. A multimodal and multidisciplinary approach is often most effective. We have suggested a therapeutic ladder.

KEYWORDS: vulval pain; vulvodynia

PMID: 26148424

Nuts and decreased breast cancer

Gynecol Obstet Invest. 2015 Jul 10.

The Protective Effect of Peanut, Walnut, and Almond Consumption on the Development of Breast Cancer.

Soriano-Hernandez AD¹, Madrigal-Perez DG, Galvan-Salazar HR, Arreola-Cruz A, Briseño-Gomez L, Guzmán-Esquivel J, Dobrovinskaya O, Lara-Esqueda A, Rodríguez-Sanchez IP, Baltazar-Rodríguez LM, Espinoza-Gomez F, Martínez-Fierro ML, de-Leon-Zaragoza L, Olmedo-Buenrostro BA, Delgado-Enciso I.

Author information

Abstract

BACKGROUND/AIMS:

Breast cancer is the most common gynecologic malignancy known worldwide. The consumption of certain foods may modify the risk for its development. Peanuts and other seeds have shown anticarcinogenic effects in vitro, but there are a few studies that evaluate the effect of their consumption on the development of breast cancer. The aim of the present study was to determine whether there is an association between the consumption of peanuts, walnuts, and almonds and the development of breast cancer.

METHODS:

We analyzed 97 patients presenting with breast cancer and 104 control subjects that did not have the pathology (BIRADS 1-2). An analysis of the main clinical characteristics and lifelong seed consumption was carried out. The association between the consumption of these foods and the risk for breast cancer was estimated by odds ratios and 95% confidence intervals, controlling other risk factors, using the Mantel-Haenszel analysis.

RESULTS:

The high consumption of peanuts, walnuts, or almonds significantly reduced the risk for breast cancer by 2-3 times. This protective effect was not found with low or moderate seed consumption when compared with null consumption.

CONCLUSIONS:

High consumption of peanuts, walnuts, and almonds appears to be a protective factor for the development of breast cancer. © 2015 S. Karger AG, Basel.

PMID:26183374

Artificial sweeteners and onset of menses

Am J Clin Nutr. 2015 Jul 15. pii: ajcn100958.

Consumption of caffeinated and artificially sweetened soft drinks is associated with risk of early menarche.

Mueller NT¹, Jacobs DR Jr², MacLehose RF², Demerath EW², Kelly SP³, Dreyfus JG², Pereira MA².

Author information

Abstract

BACKGROUND:

Early menarche has been linked to risk of several chronic diseases. Prospective research on whether the intake of soft drinks containing caffeine, a modulator of the female reproductive axis, is associated with risk of early menarche is sparse.

OBJECTIVE:

We examined the hypothesis that consumption of caffeinated soft drinks in childhood is associated with higher risk of early menarche.

DESIGN:

The National Heart, Lung, and Blood Institute Growth and Health Study recruited and enrolled 2379 (1213 African American, 1166 Caucasian) girls aged 9-10 y (from Richmond, CA; Cincinnati, OH; and Washington, DC) and followed them for 10 y. After exclusions were made, there were 1988 girls in whom we examined prospective associations between consumption of caffeinated and noncaffeinated sugar- and artificially sweetened soft drinks and early menarche (defined as menarche age <11 y). We also examined associations between intakes of caffeine, sucrose, fructose, and aspartame and early menarche.

RESULTS:

Incident early menarche occurred in 165 (8.3%) of the girls. After adjustment for confounders and premenarcheal percentage body fat, greater consumption of caffeinated soft drinks was associated with a higher risk of early menarche (RR for 1 serving/d increment: 1.47; 95% CI: 1.22, 1.79). Consumption of artificially sweetened soft drinks was also positively associated with risk of early menarche (RR for 1 serving/d increment: 1.43; 95% CI: 1.08, 1.88). Consumption of noncaffeinated soft drinks was not significantly associated with early menarche (RR for 1 serving/d increment: 0.88; 95% CI: 0.62, 1.25), nor was consumption of sugar-sweetened soft drinks (RR for 1 serving/d increment: 1.15; 95% CI: 0.95, 1.39). Consistent with the beverage findings, intakes of caffeine (RR for 1-SD increment: 1.22; 95% CI: 1.08, 1.37) and aspartame (RR for 1-SD increment: 1.20; 95% CI: 1.10, 1.31) were positively associated with risk of early menarche.

CONCLUSION:

Consumption of caffeinated and artificially sweetened soft drinks was positively associated with risk of early menarche in a US cohort of African American and Caucasian girls.

KEYWORDS: aspartame; caffeine; diet; epidemiology; puberty; sugar-sweetened beverages
PMID:26178725

Cervical CA decrease with aspirin use

J Low Genit Tract Dis. 2015 Jul;19(3):189-93. doi: 10.1097/LGT.000000000000104.

Aspirin and Acetaminophen Use and the Risk of Cervical Cancer.

Friel G¹, Liu CS, Kolomeyevskaya NV, Hampras SS, Kruszka B, Schmitt K, Cannioto RA, Lele SB, Odunsi KO, Moysich KB.

Author information

Abstract

OBJECTIVE:

In this study, we investigated whether regular use of aspirin or acetaminophen was associated with risk of cervical cancer in women treated at an American cancer hospital.

METHODS:

This case-control study included 328 patients with cervical cancer and 1,312 controls matched on age and decade enrolled. Controls were women suspected of having but not ultimately diagnosed with a neoplasm. Analgesic use was defined as regular (at least once per week for ≥ 6 months), frequent (≥ 7 tablets/week), very long term (≥ 11 years), or frequent, long term (≥ 7 tablets per week for ≥ 5 years).

RESULTS:

Compared to nonusers, frequent aspirin use was associated with decreased odds of cervical cancer (odds ratio, 0.53; 95% confidence interval, 0.29-0.97). A slightly larger association was observed with frequent, long-term use of aspirin (odds ratio, 0.46; 95% confidence interval, 0.22-0.95). Acetaminophen use was not associated with the risk of cervical cancer.

CONCLUSIONS:

Our findings suggest that frequent and frequent, long-term use of aspirin is associated with decreased odds of cervical cancer. To our knowledge, this is the first US-based study examining these associations. Given the widespread use of nonsteroidal anti-inflammatory drugs and acetaminophen worldwide, further investigations of the possible role of analgesics in cervical cancer, using a larger sample size with better-defined dosing regimens, are warranted.

PMID:25856123

8. VISCERA

Body image and obsessive eating disorder

Eat Weight Disord. 2015 Jul 16.

Body image disturbance in binge eating disorder: a comparison of obese patients with and without binge eating disorder regarding the cognitive, behavioral and perceptual component of body image.

Lewer M¹, Nasrawi N, Schroeder D, Vocks S.
Author information

Abstract

Whereas the manifestation of body image disturbance in binge eating disorder (BED) has been intensively investigated concerning the cognitive-affective component, with regard to the behavioral and the perceptual components of body image disturbance in BED, research is limited and results are inconsistent. Therefore, the present study assessed body image disturbance in BED with respect to the different components of body image in a sample of obese females (n = 31) with BED compared to obese females without an eating disorder (n = 28). The Eating Disorder Inventory-2, the Eating Disorder Examination-Questionnaire, the Body Image Avoidance Questionnaire and the Body Checking Questionnaire as well as a Digital Photo Distortion Technique based on a picture of each participant taken under standardized conditions were employed. Using two-sample t tests, we found that the participants with BED displayed significantly greater impairments concerning the cognitive-affective component of body image than the control group.

Concerning the behavioral component, participants with BED reported more body checking and avoidance behavior than the controls, but group differences failed to reach significance after the Bonferroni corrections. Regarding the perceptual component, a significant group difference was found for the perceived "ideal" figure, with the individuals suffering from BED displaying a greater wish for a slimmer ideal figure than the control group. These results support the assumption that body image disturbance is a relevant factor in BED, similar to other eating disorders.

PMID:26178486

Non-gluten celiac disease

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Non-celiac gluten sensitivity: Time for sifting the grain

Luca Elli, Leda Roncoroni and Maria Teresa Bardella.

Luca Elli, Leda Roncoroni, Maria Teresa Bardella,

Abstract

In the last few years, a new nomenclature has been proposed for the disease induced by the ingestion of gluten, a protein present in wheat, rice, barley and oats. Besides celiac disease and wheat allergy, the most studied forms of gluten-related disorders characterized by an evident immune mechanism (autoimmune in celiac disease and IgE-mediated in wheat allergy), a new entity has been included, apparently not driven by an aberrant immune response: the non-celiac gluten sensitivity (NCGS). NCGS is characterized by a heterogeneous clinical picture with intestinal and extraintestinal symptoms arising after gluten ingestion and rapidly improving after its withdrawal from the diet. The pathogenesis of NCGS is largely unknown, but a mixture of factors such as the stimulation of the innate immune system, the direct cytotoxic effects of gluten, and probably the synergy with other wheat molecules, are clues for the complicated puzzle. In addition, the diagnostic procedures still remain problematic due to the absence of efficient diagnostic markers; thus, diagnosis is based upon the symptomatic response to a gluten-free diet and the recurrence of symptoms after gluten reintroduction with the possibility of an important involvement of a placebo effect. The temporary withdrawal of gluten seems a reasonable therapy, but the timing of gluten reintroduction and the correct patient management approach are have not yet been determined.

Keywords: Celiac disease, Gluten, Gluten-related disorders, Gluten sensitivity, Non-celiac gluten sensitivity

Gastroparesis

J Clin Gastroenterol. 2015 Aug;49(7):550-8. doi: 10.1097/MCG.0000000000000320.

Gastroparesis: A Review of Current Diagnosis and Treatment Options.

Stein B¹, Everhart KK, Lacy BE.

Author information

Abstract

Gastroparesis (GP) is a chronic neuromuscular disorder of the upper gastrointestinal tract. The incidence of GP is not well described; however, the number of individuals affected by symptoms of GP in the United States is estimated to be over 4 million. The etiology of GP is diverse. Approximately 25% of cases are associated with diabetes, whereas nearly 50% are classified as idiopathic; many of these latter cases likely represent a postinfectious process. Connective tissue disorders, autoimmune disorders, prior gastric surgery, ischemia, and medications make up the vast majority of the remaining cases. The pathophysiology of GP is also diverse. Abnormalities in fundic tone, antroduodenal dyscoordination, a weak antral pump, gastric dysrhythmias, and abnormal duodenal feedback all contribute to delays in gastric emptying and symptom expression. Characteristic symptoms of GP include nausea, vomiting, epigastric pain, early satiety, and weight loss. The diagnosis of GP is made using a combination of characteristic symptoms in conjunction with objective evidence of delayed gastric emptying in the absence of mechanical obstruction.

Once the diagnosis is made, treatment options include dietary modification, medications to accelerate gastric emptying, antiemetic agents, gastric electrical stimulation, and surgery. In the following sections we will provide an overview of the health care impact of GP, describe the underlying pathophysiology, and review treatment options using an evidence-based approach.

PMID:25874755

IBS and anxiety**Prevalence of mental health disorders in inflammatory bowel disease**

Clinical and Experimental Gastroenterology, 07/21/2015 Tribbick D, et al.

This study aimed to characterize prevalence of anxiety and depressive conditions and uptake of mental health services in an Australian inflammatory bowel disease (IBD) outpatient setting. The authors conclude that rates of anxiety and depression are high in this cohort, and that IBD-focused psychological services should be a key component of any holistic IBD service, especially for those identified as having active IBD.

Methods

- Eighty-one IBD patients (39 males, mean age 35 years) attending a tertiary hospital IBD outpatient clinic participated in this study.
- Disease severity was evaluated according to the Manitoba Index.
- Diagnosis of an anxiety or depressive condition was based upon the Mini-International Neuropsychiatric Interview and the Hospital Anxiety and Depression Scale.

Results

- Based on Hospital Anxiety and Depression Scale subscale scores >8 and meeting Mini-International Neuropsychiatric Interview criteria, 16 (19.8%) participants had at least one anxiety condition, while nine (11.1%) had a depressive disorder present.
- Active IBD status was associated with higher prevalence rates across all anxiety and depressive conditions.
- Generalized anxiety was the most common (12 participants, 14.8%) anxiety condition, and major depressive disorder (recurrent) was the most common depressive condition reported (five participants, 6.2%).
- Seventeen participants (21%) reported currently seeking help for mental health issues while 12.4% were identified as having at least one psychological condition but not seeking treatment.

10 A. CERVICAL SPINE**Surgical CPR and MRI**

Spine (Phila Pa 1976). 2015 Jul 15;40(14):1092-100. doi: 10.1097/BRS.0000000000000919.

Does Magnetic Resonance Imaging Improve the Predictive Performance of a Validated Clinical Prediction Rule Developed to Evaluate Surgical Outcome in Patients With Degenerative Cervical Myelopathy?

Nouri A¹, Tetreault L, Côté P, Zamorano JJ, Dalzell K, Fehlings MG.
Author information

Abstract

STUDY DESIGN: Ambispective study.

OBJECTIVE: To determine whether MRI parameters improve the predictive performance of a validated clinical prediction rule used to assess functional outcomes in surgical patients with DCM.

SUMMARY OF BACKGROUND DATA: Degenerative cervical myelopathy (DCM) is the most common cause of spinal cord dysfunction in the elderly worldwide. A clinical prediction rule was developed to discriminate between patients with mild myelopathy postoperatively (mJOA \geq 16) and those with substantial residual neurological impairment (mJOA $<$ 16). Recently, a separate magnetic resonance imaging (MRI)-based prediction model was created. However, a model exploring the combined predictive value of imaging and clinical variables does not exist.

METHODS: One hundred and fourteen patients with MRIs were examined from a cohort of 278 patients enrolled in the AOSpine CSM-North America Study. Ninety-nine patients had complete preoperative imaging and postoperative outcome data. MRIs were evaluated for the presence/absence of signal change on T2- and T1-weighted images. Quantitative analysis of the T2 signal change was conducted and maximum canal compromise and cord compression were calculated. The added predictive performance of each MRI parameter to the clinical model was evaluated using receiver operator characteristic curves.

RESULTS: The model developed on our subsample yielded an area under the receiver operator curve (AUC) of 0.811 (95% CI: 0.726-0.896). The addition of imaging variables did not significantly improve the predictive performance. Small improvements in prediction were obtained when sagittal extent of T2 hyperintensity (AUC: 0.826, 95% CI: 0.743-0.908, 1.35% increase) or Wang ratio (AUC: 0.823, 95% CI: 0.739-0.907, 1.21%) was added. Anatomic characteristics, such as maximum canal compromise and maximum cord compression, did not improve the discriminative ability of the clinical prediction model.

CONCLUSION: In our sample of surgical patients, with clinical and image-evidence of DCM, MRI parameters do not significantly add to the predictive performance of a previously published clinical prediction rule. It remains plausible that combinations of the strongest clinical and MRI predictors may yield a similar or a superior prediction model.

LEVEL OF EVIDENCE:3.

PMID:25893357

11. UPPER C SPINE

Dissection evaluation

Int J Stroke. 2015 Jun 29. doi: 10.1111/ijvs.12546.

Impact of initial symptom for accurate diagnosis of vertebral artery dissection.

Fukuhara K¹, Ogata T¹, Ouma S¹, Tsugawa J¹, Matsumoto J², Abe H², Higashi T², Inoue T², Tsuboi Y¹.

Author information

Abstract

BACKGROUND:

It has been recognized that spontaneous vertebral artery dissection without neurological symptoms is not rare and easily misdiagnosed. Clinical clue for diagnosis of vertebral artery dissection includes initial symptoms such as headache, neck pain, or dizziness.

AIM:

To assess the role of initial symptoms for diagnosis of spontaneous vertebral artery dissection.

METHODS:

Between September 2007 and January 2014, we retrospectively reviewed clinical records of 83 patients with unilateral vertebral artery dissection without consciousness disturbance at admission. Based on the diagnostic criteria of the Spontaneous Cervicocephalic Arterial Dissections Study, the patients were divided into three groups: possible, probable, and definite cases of vertebral artery dissection. Initial symptoms were collected at the time of diagnosis from medical record for the presence or absence of headache, neck pain, tinnitus and vertigo, as well as the area of pain and its characteristics.

RESULTS:

The numbers of definite, probable, and possible vertebral artery dissection were 39, 26, and 18, respectively. Out of 83 cases, unilateral or bilateral headache was the most commonly seen (in 60 cases), followed by neck pain (in 41 cases) and vertigo (in 20 cases). Statistically, unilateral headache and/or neck pain was more common in cases with definite vertebral artery dissection group compared with other classification of the Spontaneous Cervicocephalic Arterial Dissections Study ($P = 0.040$). Vertigo was also associated with the stratification of Spontaneous Cervicocephalic Arterial Dissections Study criteria ($P = 0.012$).

CONCLUSIONS:

In our study, headache and/or neck pain, especially unilateral presentation, and vertigo were symptoms associated with the stratification of Spontaneous Cervicocephalic Arterial Dissections Study criteria. Physicians should carefully obtain clinical history for the presence of a unilateral headache and/or neck pain and vertigo when vertebral artery dissection is suspected in patients with or without objective neurological signs.

KEYWORDS: symptoms; unilateral headaches; vertebral artery dissection; vertigo
PMID:26120954

C 1 fractures

Spine J. 2015 Jun 29. pii: S1529-9430(15)00645-2. doi: 10.1016/j.spinee.2015.06.052.

Epidemiology of Atlas Fractures - A national registry based cohort study of 1537 cases.

Matthiessen C¹, Robinson Y².
Author information

Abstract

BACKGROUND CONTEXT:

The epidemiology of fractures of the first cervical vertebra - the atlas - has not been well documented. Previous studies concerning atlas fractures focus on treatment and form a weak platform for epidemiological study.

PURPOSE:

This study aims to provide reliable epidemiological data on atlas fractures.

STUDY DESIGN:

National registry based cohort study PATIENT SAMPLE: 1537 cases of atlas fractures between 1997 and 2011 from the national Swedish patient registry (NPR).

OUTCOME MEASURES:

Annual incidence, mortality METHODS: Data from the NPR and the Swedish cause of death registry (CDR) was extracted, including age, sex, diagnosis, co-morbidity, treatment codes, and date of death. The Charlson Comorbidity Index was calculated, and a survival analysis performed.

RESULTS:

A total of 869 (56.5 %) cases were male and 668 (43.5 %) were female. The mean age of the entire population was 64 years. The proportion of atlas fractures of all registered cervical fractures was 10.6 %. In 19 % of all cases there was an additional fracture of the axis, and 7 % of all cases had additional subaxial cervical fractures. Patients with fractures of the axis were older than patients with isolated atlas fractures. The annual incidence almost doubled during the study period, and in 2011 it was 17 per million inhabitants. The greatest increase in incidence occurred in the elderly population.

CONCLUSIONS:

Atlas fractures occurred predominantly in the elderly population. Further study is needed to determine the cause of the increasing incidence.

KEYWORDS: Atlas fractures; axis fractures; elderly; epidemiology; incidence; mortality
PMID:26133259

12 B. CERVICAL SURGERIES

Surgical consideration of alignment

Clin Neurol Neurosurg. 2015 Jun 30;137:72-78. doi: 10.1016/j.clineuro.2015.06.020.

Image analysis of open-door laminoplasty for cervical spondylotic myelopathy: Comparing the influence of cord morphology and spine alignment.

Lin BJ¹, Lin MC², Lin C³, Lee MS³, Feng SW², Ju DT², Ma HI², Liu MY², Hueng DY².

Author information

Abstract

OBJECTIVES:

Previous studies have identified the factors affecting the surgical outcome of cervical spondylotic myelopathy (CSM) following laminoplasty. Nonetheless, the effect of these factors remains controversial. It is unknown about the association between pre-operative cervical spinal cord morphology and post-operative imaging result following laminoplasty. The goal of this study is to analyze the impact of pre-operative cervical spinal cord morphology on post-operative imaging in patients with CSM.

METHODS:

Twenty-six patients with CSM undergoing open-door laminoplasty were classified according to pre-operative cervical spine bony alignment and cervical spinal cord morphology, and the results were evaluated in terms of post-operative spinal cord posterior drift, and post-operative expansion of the antero-posterior dura diameter.

RESULTS:

By the result of study, pre-operative spinal cord morphology was an effective classification in predicting surgical outcome - patients with anterior convexity type, description of cervical spinal cord morphology, had more spinal cord posterior migration than those with neutral or posterior convexity type after open-door laminoplasty. Otherwise, the interesting finding was that cervical spine Cobb's angle had an impact on post-operative spinal cord posterior drift in patients with neutral or posterior convexity type spinal cord morphology - the degree of kyphosis was inversely proportional to the distance of post-operative spinal cord posterior drift, but not in the anterior convexity type.

CONCLUSIONS:

These findings supported that pre-operative cervical spinal cord morphology may be used as screening for patients undergoing laminoplasty. Patients having neutral or posterior convexity type spinal cord morphology accompanied with kyphotic deformity were not suitable candidates for laminoplasty.

KEYWORDS: Cervical spondylotic myelopathy; Open-door laminoplasty; Spinal cord morphology

PMID:26164347

13. CRANIUM/TMJ

Hard palate arch

Prog Orthod. 2015 Dec;16(1):89. doi: 10.1186/s40510-015-0089-6. Epub 2015 Jun 27.

Comparison between rapid and mixed maxillary expansion through an assessment of arch changes on dental casts.

Grassia V¹, d'Apuzzo F, Jamilian A, Femiano F, Favero L, Perillo L.
Author information

Abstract

BACKGROUND:

Aim of this retrospective observational study was to compare upper and lower dental changes in patients treated with Rapid Maxillary Expansion (RME) and Mixed Maxillary Expansion (MME), assessed by dental cast analysis.

METHODS:

Treatment groups consisted of 42 patients: the RME group (n = 21) consisted of 13 female and 8 male subjects with the mean age of 8.8 years \pm 1.37 at T0 and 9.6 years \pm 1.45 at T1; the MME group (n = 21) consisted of 12 female and 9 male patients with a mean age of 8.9 years \pm 2.34 at T0 and 10.5 years \pm 2.08 at T1. The upper and lower arch analysis was performed on four dental bilateral landmarks, on upper and lower casts; also upper and lower arch depths were measured. The groups were compared using independent sample t-test to estimate dental changes in upper and lower arches.

RESULTS:

Before expansion treatment (T0), the groups were similar for all examined variables (p>0.05). In both RME and MME group, significant increments in all the variables for maxillary and mandibular arch widths were observed after treatment. No significant differences in maxillary and mandibular arch depths were observed at the end of treatment in both groups. An evaluation of the changes after RME and MME (T1) showed statistically significant differences in mandibular arch depth (p<0.001) and maxillary intercanine widths (p<0.05). Differences in maxillary arch depth and arch width measurements were not significant.

CONCLUSIONS:

RME and MME can be considered two effective treatment options to improve transverse arch dimensions and gain space in the dental arches. A greater lower arch expansion was observed in the MME group, which might be attributed to the "lip bumper effects" observed in the MME protocol.

PMID:26122076

TMJ/hypoxia

J Oral Rehabil. 2015 Jul 1. doi: 10.1111/joor.12323.

Could transient hypoxia be associated with rhythmic masticatory muscle activity in sleep bruxism in the absence of sleep-disordered breathing? A preliminary report.

Dumais IE¹, Lavigne GJ^{1,2}, Carra MC¹, Rompré PH¹, Huynh NT¹.

Author information

Abstract

Sleep bruxism (SB) is a repetitive jaw-muscle activity characterised by clenching or grinding of the teeth during sleep. Sleep bruxism activity is characterised by rhythmic masticatory muscle activity (RMMA). Many but not all RMMA episodes are associated with sleep arousal. The aim of this study was to evaluate whether transient oxygen saturation level change can be temporally associated with genesis of RMMA/SB. Sleep laboratory or home recordings data from 22 SB (tooth grinding history in the absence of reported sleep-disordered breathing) and healthy subjects were analysed. A total of 143 RMMA/SB episodes were classified in four categories: (i) no arousal + no body movement; (ii) arousal + no body movement; (iii) no arousal + body movement; (iv) arousal + body movement. Blood oxygen levels (SaO₂) were assessed from finger oximetry signal at the baseline (before RMMA), and during RMMA. Significant variation in SaO₂ over time ($P = 0.001$) was found after RMMA onset (+7 to +9 s). No difference between categories ($P = 0.91$) and no interaction between categories and SaO₂ variation over time ($P = 0.10$) were observed. SaO₂ of six of 22 subjects (27%) remained equal or slight increase after the RMMA/SB onset (+8 s) compared to baseline; 10 subjects (45%) slightly decreased (drop 0.01-1%) and the remaining (27%) decreased between 1% and 2%. These preliminary findings suggest that a subgroup of SB subjects had (i) a minor transient hypoxia potentially associated with the onset of RMMA episodes, and this (ii) independently of concomitant sleep arousal or body movements.

KEYWORDS: desaturation; hypoxia; oximetry; rhythmic masticatory muscle activity; sleep arousal; sleep bruxism

PMID: 26139077

Trigeminal neuralgia

J Headache Pain. 2015 Dec;16(1):550. Epub 2015 Jul 17.

Trigeminal neuralgia - a coherent cross-specialty management program.

Heinskou T¹, Maarbjerg S, Rochat P, Wolfram F, Jensen RH, Bendtsen L.
Author information

Abstract

BACKGROUND:

Optimal management of patients with classical trigeminal neuralgia (TN) requires specific treatment programs and close collaboration between medical, radiological and surgical specialties. Organization of such treatment programs has never been described before. With this paper we aim to describe the implementation and feasibility of an accelerated cross-specialty management program, to describe the collaboration between the involved specialties and to report the patient flow during the first 2 years after implementation. Finally, we aim to stimulate discussions about optimal management of TN.

METHODS:

Based on collaboration between neurologists, neuroradiologists and neurosurgeons a standardized program for TN was implemented in May 2012 at the Danish Headache Center (DHC). First out-patient visit and subsequent 3.0 Tesla MRI scan was booked in an accelerated manner. The MRI scan was performed according to a special TN protocol developed for this program. Patients initially referred to neurosurgery were re-directed to DHC for pre-surgical evaluation of diagnosis and optimization of medical treatment. Follow-up was 2 years with fixed visits where medical treatment and indication for neurosurgery was continuously evaluated. Scientific data was collected in a structured and prospective manner.

RESULTS:

From May 2012 to April 2014, 130 patients entered the accelerated program. Waiting time for the first out-patient visit was 42 days. Ninety-four percent of the patients had a MRI performed according to the special protocol after a mean of 37 days. Within 2 years follow-up 35 % of the patients were referred to neurosurgery after a median time of 65 days. Five scientific papers describing demographics, clinical characteristics and neuroanatomical abnormalities were published.

CONCLUSION:

The described cross-specialty management program proved to be feasible and to have acceptable waiting times for referral and highly specialized work-up of TN patients in a public tertiary referral centre for headache and facial pain. Early high quality MRI ensured correct diagnosis and that the neurosurgeons had a standardized basis before decision-making on impending surgery. The program ensured that referral of the subgroup of patients in need for surgery was standardized, ensured continuous evaluation of the need for adjustments in pharmacological management and formed the basis for scientific research.

PMID:26183265

Facial growth

Am J Orthod Dentofacial Orthop. 2015 Jul;148(1):37-46. doi: 10.1016/j.ajodo.2015.04.017.

Growth modification of the face: A current perspective with emphasis on Class III treatment.

De Clerck HJ¹, Proffit WR².
Author information

Abstract

A summary of the current status of modification of jaw growth indicates the following. 1. Transverse expansion of the maxilla is easy before adolescence, requires heavy forces to create microfractures during adolescence, and can be accomplished only with partial or complete surgical osteotomy after adolescence. Transverse expansion of the mandible or constriction of either jaw requires surgery. 2. Acceleration of mandibular growth in preadolescent or adolescent patients can be achieved, but slower than normal growth afterward reduces or eliminates a long-term increase in size of the mandible. Restraint of maxillary growth occurs with all types of appliances to correct skeletal Class II problems. For short-face Class II patients, increasing the face height during preadolescent or adolescent orthodontic treatment is possible, but it may make the Class II problem worse unless favorable anteroposterior growth occurs. For those with a long face, controlling excessive vertical growth during adolescence is rarely successful. 3. Attempts to restrain mandibular growth in Class III patients with external forces largely result in downward and backward rotation of the mandible. Moving the maxilla forward with external force is possible before adolescence; moving it forward and simultaneously restricting forward mandibular growth without rotating the jaw is possible during adolescence with intermaxillary traction to bone anchors.

The amount of skeletal change with this therapy often extends to the midface, and the short-term effects on both jaws are greater than with previous approaches, but individual variations in the amount of maxillary vs mandibular response occur, and it still is not possible to accurately predict the outcome for a patient. For all types of growth modification, 3-dimensional imaging to distinguish skeletal changes and better biomarkers or genetic identification of patient types to indicate likely treatment responses are needed.

PMID:26124026

Adolescent orthodontics

Am J Orthod Dentofacial Orthop. 2015 Jul;148(1):47-59. doi: 10.1016/j.ajodo.2015.01.030.

Early orthodontic treatment for Class II malocclusion reduces the chance of incisal trauma: Results of a Cochrane systematic review.

Thiruvengkatachari B¹, Harrison J², Worthington H³, O'Brien K⁴.
Author information

Abstract

In this article, we summarize the most clinically relevant findings of our recently updated Cochrane systematic review into the treatment of Class II Division 1 malocclusion.

METHODS:

A systematic review of the databases was performed to identify all randomized controlled trials evaluating early treatment with functional appliances to correct Class II Division 1 malocclusion.

RESULTS:

Three early treatment studies with data from 353 participants were included in this review. The results showed no significant difference for any outcomes, except new incidence of incisor trauma, which was significantly less for the early treatment group. The risk ratio analysis for new incisor trauma showed that providing early treatment reduced the risk of trauma by 33% and 41% in the functional and headgear groups, respectively. However, when the numbers needed to treat were calculated, early treatment with functional appliances prevents 1 incidence of incisal trauma for every 10 patients (95% CI, 5-174), and headgear treatment prevents 1 incidence of incisal trauma for every 6 patients (95% CI, 3-23).

CONCLUSIONS:

Orthodontic treatment for young children, followed by a later phase of treatment when the child is in early adolescence, appears to reduce the incidence of new incisal trauma significantly compared with treatment that is provided in 1 phase when the child is in early adolescence. However, these data should be interpreted with caution because of the high degree of uncertainty. There are no other advantages in providing 2-phase treatment compared with 1 phase in early adolescence.

PMID: 26124027

16. CONCUSSIONS

Headers

JAMA Pediatr. 2015 Jul 13. doi: 10.1001/jamapediatrics.2015.1062.

An Evidence-Based Discussion of Heading the Ball and Concussions in High School Soccer.

Comstock RD1, Currie DW2, Pierpoint LA2, Grubenhoff JA3, Fields SK4.

Author information

Abstract

IMPORTANCE: Soccer, originally introduced as a safer sport for children and adolescents, has seen a rapid increase in popularity in the United States over the past 3 decades. Recently, concerns have been raised regarding the safety of soccer ball heading (when an athlete attempts to play the ball in the air with his or her head) given the rise in concussion rates, with some calling for a ban on heading among soccer players younger than 14 years.

OBJECTIVES: To evaluate trends over time in boys' and girls' soccer concussions, to identify injury mechanisms commonly leading to concussions, to delineate soccer-specific activities during which most concussions occur, to detail heading-related soccer concussion mechanisms, and to compare concussion symptom patterns by injury mechanism.

DESIGN, SETTING, AND PARTICIPANTS: Retrospective analysis of longitudinal surveillance data collected from 2005-2006 through 2013-2014 in a large, nationally representative sample of US high schools. Participants were boys and girls who were high school soccer players.

EXPOSURES: Concussions sustained during high school-sanctioned soccer games and practices.

MAIN OUTCOMES AND MEASURES: Mechanism and sport-specific activity of concussion.

RESULTS: Overall, 627 concussions were sustained during 1 393 753 athlete exposures (AEs) among girls (4.50 concussions per 10 000 AEs), and 442 concussions were sustained during 1 592 238 AEs among boys (2.78 concussions per 10 000 AEs). For boys (68.8%) and girls (51.3%), contact with another player was the most common concussion mechanism. Heading was the most common soccer-specific activity, responsible for 30.6% of boys' concussions and 25.3% of girls' concussions. Contact with another player was the most common mechanism of injury in heading-related concussions among boys (78.1%) and girls (61.9%). There were few differences in concussion symptom patterns by injury mechanism.

CONCLUSIONS AND RELEVANCE: Although heading is the most common activity associated with concussions, the most frequent mechanism was athlete-athlete contact. Such information is needed to drive evidence-based, targeted prevention efforts to effectively reduce soccer-related concussions. Although banning heading from youth soccer would likely prevent some concussions, reducing athlete-athlete contact across all phases of play would likely be a more effective way to prevent concussions as well as other injuries.

PMID: 26168306

17. SHOULDER GIRDLE**Scapula orientation**

J Shoulder Elbow Surg. 2015 Jun 25. pii: S1058-2746(15)00202-5. doi: 10.1016/j.jse.2015.04.007.

3D scapular orientation on healthy and pathologic subjects using stereoradiographs during arm elevation.

Ohl X¹, Hagemester N², Zhang C³, Billuart F⁴, Gagey O⁵, Bureau NJ², Skalli W⁴.
Author information

Abstract

BACKGROUND:

Alterations of the scapular kinematics in different pathologic conditions have been widely studied. However, results have shown considerable discrepancies concerning the direction and the amplitude of scapular movement. The lack of consistency in the literature probably has several explanations. The purpose of this study was to analyze scapular orientation with the arm at rest and with 90° lateral elevation in healthy and pathologic subjects by use of stereoradiographs.

MATERIALS AND METHODS:

All participants (n = 65) underwent a clinical examination and magnetic resonance imaging of the shoulder to assess rotator cuff status. Participants were separated into 3 groups: healthy, rotator cuff tear (RCT), and RCT and subacromial impingement syndrome (RCT+ SIS). A 3-dimensional model of the scapula was fitted to each low-dose stereoradiograph acquired with the arm at rest and 90° arm elevation.

RESULTS:

Orientation of the scapula with the arm at rest was not significantly different between groups. During lateral elevation, scapular orientation was not significantly different between the healthy group and the RCT group. However, upward rotation was significantly reduced in the RCT + SIS group.

CONCLUSION:

Alterations of scapular kinematics in symptomatic subjects are multifactorial. We observed a link between clinically assessed subacromial impingement and scapular orientation during lateral elevation of the arm.

KEYWORDS: Subacromial impingement syndrome; rotator cuff tear; scapula; shoulder kinematics; stereoradiography
PMID:26119634

20 A. ROTATOR CUFF**Earlier rotator cuff surgeries leads to better outcomes**

J Shoulder Elbow Surg. 2015 Jul 7. pii: S1058-2746(15)00288-8. doi: 10.1016/j.jse.2015.05.043.

Surgery within 6 months of an acute rotator cuff tear significantly improves outcome.

Duncan NS¹, Booker SJ², Gooding BW², Geoghegan J², Wallace WA², Manning PA².

Author information

¹Shoulder and Elbow Unit, Nottingham City Hospital, Nottingham, UK. Electronic address: nickduncan@doctors.net.uk.

²Shoulder and Elbow Unit, Nottingham City Hospital, Nottingham, UK.

Abstract

BACKGROUND:

To determine the effect of time to repair on the outcome after an acute rotator cuff tear.

METHODS:

We performed a retrospective analysis of prospectively collected data on patients presenting with acute rotator cuff tear to our shoulder clinic. Patient-reported outcomes were assessed using the Oxford Shoulder Score, and symptomatic retears were diagnosed by clinical assessment plus imaging.

RESULTS:

Twenty patients underwent rotator cuff repair within 6 months of injury via initial referral through the Acute Shoulder Injury Clinic (early repair group; mean age, 60 years; age range, 39-77 years). Twenty age- and sex-matched patients were identified who had undergone delayed repair (6-18 months after injury; mean age, 60 years; age range, 40-78 years). The mean follow-up period was 10 months for the early repair group versus 11 months for the delayed repair group. Both groups had clinically significant improvements in their Oxford scores, although the early repair group had an improvement that was nearly double that of the delayed repair group (20.3 for early vs 10.4 for delayed, $P = .0014$). Postoperative Oxford scores were significantly higher in the early repair group (mean of 43.8 for early vs 35.8 for delayed, $P = .0057$). There were 2 symptomatic retears in the early repair group versus 5 in the delayed repair group.

CONCLUSION:

Our results show improved outcomes with early repair (within 6 months) of acute rotator cuff tears and support the provision of an acute shoulder injury referral clinic.

KEYWORDS: Rotator cuff tear; acute repair; arthroscopic; delayed repair

PMID: 26163285

Massive tears

J Shoulder Elbow Surg. 2015 Jun 27. pii: S1058-2746(15)00200-1. doi: 10.1016/j.jse.2015.04.005.

Massive rotator cuff tears: pathomechanics, current treatment options, and clinical outcomes.

Greenspoon JA¹, Petri M², Warth RJ³, Millett PJ⁴.
Author information

Abstract

Rotator cuff tear size has an important effect on clinical outcomes after repair. Management options for massive rotator cuff tears are numerous, and selection of the most appropriate treatment method for individual patients can be a challenge. An understanding of the pathomechanics, treatment, and clinical outcomes in patients with massive rotator cuff tears can serve as a guide for clinical decision-making. The purpose of this article was to review treatment options and clinical outcomes for the management of massive rotator cuff tears.

KEYWORDS: Rotator cuff; clinical outcomes; massive rotator cuff tears; repair
PMID:26129871

22 A. IMPINGEMENT**Motions of impingement**

J Shoulder Elbow Surg. 2015 Jun 25. pii: S1058-2746(15)00180-9. doi: 10.1016/j.jse.2015.04.001.

Which shoulder motions cause subacromial impingement? Evaluating the vertical displacement and peak strain of the coracoacromial ligament by ultrasound speckle tracking imaging.

Park I¹, Lee HJ², Kim SE², Bae SH², Byun CH², Kim YS³.
Author information

Abstract

BACKGROUND:

Subacromial impingement is a common cause of shoulder pain and one cause of rotator cuff disease. We aimed to identify which shoulder motions cause subacromial impingement by measuring the vertical displacement and peak strain of the coracoacromial ligament using ultrasound speckle tracking imaging.

METHODS:

Sixteen shoulders without shoulder disability were enrolled. All subjects were men, and the average age was 28.6 years. The vertical displacement and peak strain of the coracoacromial ligament were analyzed by the motion tracing program during the following active assisted motions (active motion controlled by the examiner): (1) forward flexion in the scapular plane, (2) horizontal abduction in the axial plane, (3) external rotation with the arm at 0° abduction (ER0), (4) internal rotation with the arm at 0° abduction (IR0), (5) internal rotation with the arm at 90° abduction (IR90), and (6) internal rotation at the back (IRB).

RESULTS:

The mean vertical displacement of the coracoacromial ligament during forward flexion (2.2 mm), horizontal abduction (2.2 mm), and IR90 (2.4 mm) was significantly greater than that during the other motions (ER0, -0.7 mm; IR0, 0.5 mm; IRB, 1.0 mm; $P < .003$). The mean peak strain was significantly higher in forward flexion (6.88%), horizontal abduction (6.58%), and IR90 (4.88%) than with the other motions (ER0, 1.42%; IR0, 1.78%; IRB, 2.61%; $P < .003$).

CONCLUSIONS:

Forward flexion, horizontal abduction, and IR90 showed higher vertical displacement and peak strain of the coracoacromial ligament, causing subacromial impingement. It is recommended that patients with impingement syndrome or a repaired rotator cuff avoid these shoulder motions.

KEYWORDS: 2D speckle tracking echocardiography; Coracoacromial ligament; displacement; impingement; in vivo; strain
PMID: 26119631

25. WRIST AND HAND**Hand exercise in OA**

Ann Rheum Dis. 2015 Aug;74(8):1501-8. doi: 10.1136/annrheumdis-2013-204808. Epub 2014 Mar 25.

Effect of home-based hand exercises in women with hand osteoarthritis: a randomised controlled trial.

Hennig T¹, Hæhre L¹, Hornburg VT¹, Mowinckel P², Norli ES¹, Kjekshus I².

Author information

Abstract

BACKGROUND:

Hand exercises are recommended for patients with hand osteoarthritis (HOA), though evidence for their effect is conflicting.

OBJECTIVE:

To evaluate, in a randomised controlled trial, the effect of HOA information plus home-based hand exercises (exercise group) compared with information only (control group) in women with HOA.

METHODS:

Interventions were delivered by two occupational therapists. Exercise group participants received eight follow-up calls over the 3-month study and recorded adherence, pain after exercises and adverse events in a diary. Primary outcome was activity performance measured after 3 months by the Patient-Specific Functional Scale (PSFS), with a range of 0-10. Secondary outcomes were measurements of hand function, disease activity, symptoms and number of responders to treatment according to the OMERACT-OARSI criteria.

RESULTS:

Of 80 women randomised (40 : 40) (mean age (SD) 60.8 years (7.0)), follow-up was 89% (n=71). An intention-to-treat analysis was performed. The adjusted mean difference for the exercise versus control group was 1.4 points (95% CI 0.6 to 2.2, effect size 1.0) for the PSFS score. Thirteen patients in the exercise group versus three participants in the control group reached a positive minimal clinical important difference of 2.2 points in the PSFS total score, while none versus two, respectively, had a negative change (p=0.007). For secondary outcomes, significant mean differences were found in grip strength and thumb web space, in fatigue, joint pain and the Functional Index for HOA activity performance scores. Sixteen exercise-group participants fulfilled the OMERACT-OARSI response criteria versus two control-group participants (p<0.001).

CONCLUSIONS:

Hand exercises were well tolerated and significantly improved activity performance, grip strength, pain and fatigue in women with HOA.

TRIAL REGISTRATION NUMBER:

ISRCTN79019063.

KEYWORDS: Hand Osteoarthritis; Occupational Therapy; Rehabilitation

PMID: 24667900

26. CARPAL TUNNEL SYNDROME**Recovery/depression**

Pain Med. 2015 Jul 14. doi: 10.1111/pme.12857.

Direct and Indirect Effects of Function in Associated Variables Such as Depression and Severity on Pain Intensity in Women with Carpal Tunnel Syndrome.

Fernández-de-Las-Peñas C^{1,2}, Fernández-Muñoz JJ³, Palacios-Ceña M¹, Navarro-Pardo E⁴, Ambite-Quesada S^{1,2}, Salom-Moreno J^{1,2}.

Author information

Abstract

OBJECTIVE:

To determine the direct and indirect effects of function on clinical variables such as age, pain intensity, years of the disease, severity of symptoms, and depression in women with electrodiagnostic and clinical diagnosis of carpal tunnel syndrome (CTS).

DESIGN:

A cross-sectional study.

SETTING:

Patients from an urban hospital referred to a university clinic.

METHODS:

Two hundred and forty-four (n = 224) women with CTS were included. Demographic and clinical data, duration of symptoms, function, symptom's severity of the symptoms, pain intensity, and depression were self-reported collected. Correlation and path analysis with maximum likelihood estimation were conducted to assess the direct and indirect effect of hand function on pain, age, years with the disease, symptoms severity, and depression.

RESULTS:

Significant positive correlations between function and pain intensity, years with pain and symptoms severity were observed. The path analysis found direct effects from depression, symptoms severity, and years with pain to function (all, $P < 0.01$). Paths between function and depression on pain intensity (both, $P < 0.01$) were also observed. The amount of function explained by all predictors was 22%. The indirect effects in the path analysis revealed that function exerted an indirect effect from depression to pain intensity ($B = 0.18$; $P < 0.01$), and from symptoms severity to the intensity of pain ($B = 0.10$; $P < 0.01$). Overall, the amount of current pain intensity explained by all predictors in the model was $R^2 = 0.22$.

CONCLUSIONS:

Our study demonstrated that function mediates the relationship between depression and symptoms severity with pain intensity in women with CTS. Future longitudinal studies will help to determine the clinical implications of these findings.

Wiley Periodicals, Inc.

KEYWORDS: Carpal Tunnel Syndrome; Depression; Function; Mediation; Pain; Severity
PMID:26176201

28. REPLACEMENTS**Smoking and replacements**

J Bone Joint Surg Am. 2015 Jul 1;97(13):1049-58. doi: 10.2106/JBJS.N.01016.

The Effect of Smoking on Short-Term Complications Following Total Hip and Knee Arthroplasty.

Duchman KR¹, Gao Y¹, Pugely AJ¹, Martin CT¹, Noiseux NO¹, Callaghan JJ¹.
Author information

Abstract

BACKGROUND:

Total joint arthroplasty is the most frequently performed orthopaedic procedure in the United States. The purpose of the present study was to identify differences in thirty-day morbidity and mortality following primary total hip and total knee arthroplasty according to smoking status and pack-year history of smoking.

METHODS:

We queried the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) database to identify patients who had undergone primary total hip or total knee arthroplasty between 2006 and 2012. Patients were stratified by smoking status and pack-year history of smoking. Thirty-day rates of mortality, wound complications, and total complications were compared with use of univariate and multivariate analyses.

RESULTS:

We identified 78,191 patients who had undergone primary total hip or total knee arthroplasty. Of these, 81.8% (63,971) were nonsmokers, 7.9% (6158) were former smokers, and 10.3% (8062) were current smokers. Current smokers had a higher rate of wound complications (1.8%) compared with former smokers and nonsmokers (1.3% and 1.1%, respectively; $p < 0.001$). Former smokers had a higher rate of total complications (6.9%) compared with current smokers and nonsmokers (5.9% and 5.4%, respectively; $p < 0.001$). Multivariate analysis identified current smokers as being at increased risk of wound complications (odds ratio [OR], 1.47; 95% confidence interval [CI], 1.21 to 1.78), particularly deep wound infection, while both current smokers (OR, 1.18; 95% CI, 1.06 to 1.31) and former smokers (OR, 1.20; 95% CI, 1.08 to 1.34) were at increased total complication risk. Increasing pack-year history of smoking resulted in increasing total complication risk.

CONCLUSIONS:

On the basis of our findings, current smokers have an increased risk of wound complications and both current and former smokers have an increased total complication risk following total hip or total knee arthroplasty.

LEVEL OF EVIDENCE:

Prognostic Level III. See Instructions for Authors for a complete description of levels of evidence.

PMID: 26135071

Psychological factors in replacements

Clin Orthop Relat Res. 2015 Aug;473(8):2630-8. doi: 10.1007/s11999-015-4234-9. Epub 2015 Mar 20.

Do Psychological Factors Predict Poor Outcome in Patients Undergoing TKA? A Systematic Review.

Khatib Y¹, Madan A, Naylor JM, Harris IA.
Author information

Abstract

BACKGROUND:

A subgroup of patients undergoing TKA is unhappy with the outcome of surgery and preoperative psychological factors may play a role in their dissatisfaction.

QUESTIONS/PURPOSES:

We asked whether (1) psychological factors, as measured by preoperative self-reported questionnaires, predicted poor outcome after TKA, and (2) whether certain psychological factors examined predicted poor outcome better than others.

METHODS:

We performed a systematic review and meta-analysis of prospective observational studies published in MEDLINE, CINAHL(®), EMBASE™, and PsycINFO(®) databases from their date of inception to October 2013, augmented with a manual search of bibliographies. Study eligibility was performed according to an a priori protocol. Included studies were assessed for quality according to the Newcastle-Ottawa scale. Two reviewers independently performed the search, identified eligible studies, assessed their methodologic quality, and extracted data. Outcomes of interest included postoperative dissatisfaction, pain, or limited function of the patients.

RESULTS:

A total of 19 studies (17 cohort studies and two cross-sectional surveys) containing data on 9046 TKAs performed in 8704 adult patients were included in the review. Mean patient age was 68 years and followup ranged from 6 to 60 months (mean study followup, 14 months). Clinical and methodologic heterogeneity in study design prevented the statistical pooling of data and subsequent meta-analysis. Dissatisfaction rates with TKA ranged from 7.5% to 28.3%. Psychological health was deemed a significant predictor of satisfaction, pain, or function at a minimum of 6 months after TKA in 16 studies. The remaining three studies did not find this relationship. Baseline mental health factors may affect patient satisfaction, their long-term perception of pain, and their motivation to return to the desired level of function. We were unable to determine the most relevant psychological states or the most appropriate way to assess them with our systematic review.

CONCLUSIONS:

The preoperative psychological state of a patient may affect the outcome after a TKA. A comprehensive psychological assessment of patients is required to examine the long-term effect of such psychological factors on the eventual outcomes of TKA once the recovery phase is complete and to assess the effect that treatment for these psychological conditions may have on decreasing the dissatisfaction rate with TKA in this population.

PMID: 25791440

30 A. IMPINGEMENT**Hip impingement and labral tear**

Knee Surg Sports Traumatol Arthrosc. 2015 Jul 3.

Is quality of life following hip arthroscopy in patients with chondrolabral pathology associated with impairments in hip strength or range of motion?

Kemp JL¹, Makdissi M, Schache AG, Finch CF, Pritchard MG, Crossley KM.
Author information

Abstract

INTRODUCTION:

If physical impairments that are associated with poorer outcomes can be identified in people with chondrolabral hip pathology, then rehabilitation programmes that target such modifiable impairments could potentially be established to improve quality of life. The aim of this study was to examine the relationship between quality-of-life PROs and physical impairment measurements in people with chondrolabral pathology post-hip arthroscopic surgery.

METHODS:

This was a cross-sectional study where multiple stepwise linear regression analyses were conducted to determine which physical impairment measurements were most associated with poorer quality-of-life patient-reported outcomes (PROs). Eighty-four patients (42 women; all aged 36 ± 10 years) with hip chondrolabral pathology 12- to 24-month post-hip arthroscopy were included. The Hip disability and Osteoarthritis Outcome Score Quality-of-life (HOOS-Q) subscale and International Hip Outcome Tool (IHOT-33) PROs were collected. Measurements of active hip ROM and strength were assessed.

RESULTS:

Modifiable post-surgical physical impairments were associated with PRO in patients with chondrolabral pathology. Greater hip flexion ROM was independently associated with better scores in both HOOS-Q and IHOT-33 (adjusted r^2 values ranged from 0.249 to 0.341). Greater hip adduction strength was independently associated with better HOOS-Q and IHOT-33 (adjusted r^2 0.227-0.317). Receiver Operator Curve analyses determined that the limit value for hip flexion ROM was 100° (sensitivity 92 %, specificity 75 %), and hip adduction strength was 0.86 Nm/kg (sensitivity 96 %, specificity 70 %).

CONCLUSIONS:

Hip flexion ROM and adduction strength were associated with better quality-of-life PRO scores in patients with chondrolabral pathology 12- to 24-month post-hip arthroscopy. These impairments could be targeted by clinicians designing rehabilitation programmes to this patient group.

LEVEL OF EVIDENCE: Cross-sectional study, Level IV.

PMID: 26138455

31. KNEE**Alignment categorization**

Int J Rheum Dis. 2015 Jul 14. doi: 10.1111/1756-185X.12696.

Does knee malalignment predict the efficacy of realignment therapy for patients with knee osteoarthritis?

Rezaeian ZS^{1,2,3}, Smith MM⁴, Skaife TL⁵, Harvey WF⁶, Gross KD⁷, Hunter DJ^{2,3}.

Author information

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Abstract

BACKGROUND:

Realignment therapies, including knee braces, foot orthoses and shoes are prescribed to patients with medial knee osteoarthritis (OA) with the goal of unloading the medial tibiofemoral (TF) compartment. It is uncertain whether realignment therapies have different effects in those with knee malalignment. We studied whether the efficacy of realignment therapy for pain and function in persons with medial TF OA is predicted by the severity of the baseline knee malalignment.

METHODS:

The baseline characteristics of 48 participants with moderate to severe medial knee OA were collected. Participants' pain and function were measured using Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scale before and after 12 weeks of realignment therapy using a valgus unloader knee brace plus bilateral neutral foot orthoses and motion control shoes. Anatomical axis (AA) was measured on weight-bearing knee radiographs by a blinded reader and knee malalignment was categorized as either varus malaligned (moderate or severe) or neutral according to the AA angle. We assessed for differences in response to treatment according to alignment category. General linear statistical models were generated to determine which of the measured alignment variables and covariates predicted change in the pain outcome.

RESULTS:

Anatomical axis knee alignment was not a significant predictor of pain or function change with active treatment. Baseline WOMAC scores were the best predictor of change in WOMAC ($P < 0.01$ and $P = 0.06$ for pain and function, respectively).

CONCLUSIONS:

Baseline knee alignment did predict the efficacy of 12 weeks realignment therapy in participants with medial tibiofemoral OA.

KEYWORDS: alignment; bracing; osteoarthritis

PMID: 26171969

33. MENISCUS

Medial Meniscus tears

Knee Surg Sports Traumatol Arthrosc. 2015 Jul 3.

Larger medial femoral to tibial condylar dimension may trigger posterior root tear of medial meniscus.

Chung JY¹, Song HK, Jung MK, Oh HT, Kim JH, Yoon JS, Min BH.
Author information

Abstract

PURPOSE:

The major meniscal functions are load bearing, load distribution, and shock absorption by increasing the tibiofemoral joint (TFJ) contact area and dissipating axial loads by conversion into hoop stresses. The increased hoop strain stretches the meniscus in outward direction towards radius, causing extrusion, which is associated with the root tear and resultant degenerative osteoarthritis. Since the larger contact area of medial TFJ may increase the hoop stresses, we hypothesized that the larger medial femoral to tibial condylar dimension would contribute to the development of medial meniscus posterior root tear (MMPRT). Thus, the purpose of the study was to assess the relationship between MMPRT and medial femoral to tibial condylar dimension.

METHODS:

A case-control study was conducted to compare medial femoral to tibial condylar dimensions of patients with complete MMPRT (n = 59) with those of demography-matched controls (n = 59) during the period from 2010 to 2013. In each patient, MRIs were reviewed and several parameters were measured including articulation width of medial femoral condyle (MFC) at 0°, 30°, 60°, and 90°, medial tibial condyle (MTC) width, degree of meniscal extrusion, and medial femoral to tibial condylar width ratio (MFC/MTC) at 0°, 30°, 60°, and 90°, respectively. Demographic and radiographic data were assessed.

RESULTS:

A larger medial femoral to tibial condylar dimension was associated with MMPRT at 0° and 30° knee angles. Patients with MFC/MTC greater than 0.9 at 0° also showed about 2.5-fold increase in the chance of MMPRT. Those with meniscal extrusion greater than 3 mm also had about 17.1 times greater chance for the presence of MMPRT accordingly.

CONCLUSIONS:

A larger medial femoral to tibial condylar dimension may be considered as one of the regional contributors to the outbreak of MMPRT, and medial femoral to tibial condylar width ratio greater than 0.9 at 0° knee angle may be considered as a significant risk factor for MMPRT.

LEVEL OF EVIDENCE: III.

PMID: 26138454

34. PATELLA**Pain in adolescence and adulthood**

Sports Med. 2015 Jul 16.

Patellofemoral Pain in Adolescence and Adulthood: Same Same, but Different?

Rathleff MS¹, Vicenzino B, Middelkoop M, Graven-Nielsen T, van Linschoten R, Hölmich P, Thorborg K.

Author information

Abstract

The mainstay of patellofemoral pain (PFP) treatment is exercise therapy, often in combination with adjunct treatments such as patient education, orthoses, patella taping and stretching, making the intervention multimodal in nature. The vast majority of randomised controlled trials among patients with PFP have investigated the effect of treatment among adults (>18 years of age). So, while systematic reviews and meta-analyses provide evidence-based recommendations for treating PFP, these recommendations are largely based upon the trials in adults. In the present article, we have summarised the findings on the efficacy of multimodal treatment (predominantly exercise) from the three largest trials concerning patients with PFP, focusing on the long-term success-rate 1 year after receiving multimodal treatment, and with a particular focus on the success rate across the different age groups, including both adolescents, young adults and adults. The results of this paper show that there appears to be a difference in the success rate between adolescents and adults, despite providing similar exercise treatment and having similar exercise compliance.

While PFP may present in a similar fashion in adolescence and adults, it may not be the same underlying condition or stage, and different treatments may be required. Collectively, this highlights the importance of increasing our understanding of the underlying pathology, pain mechanisms and why treatment may-or may not-work in adolescents and adults with PFP.

PMID: 26178330

35. KNEE/TOTAL

Gait changes with

Influence of total knee arthroplasty on gait mechanics of the replaced and non-replaced limb during stair negotiation

Journal of Arthroplasty, 07/23/2015 Standifird TW, et al.

Abstract

This study compared biomechanics during stair ascent in replaced and non-replaced limbs of total knee arthroplasty (TKA) patients with control limbs of healthy participants. Thirteen TKA patients and fifteen controls performed stair ascent. Replaced and non-replaced knees of TKA patients were less flexed at contact compared to controls. The loading response peak knee extension moment was greater in control and non-replaced knees compared with replaced.

The push-off peak knee abduction moment was elevated in replaced limbs compared to controls. Loading and push-off peak hip abduction moments were greater in replaced limbs compared to controls. The push-off peak hip abduction moment was greater in non-replaced limbs compared to controls. Future rehabilitation protocols should consider the replaced knee and also the non-replaced knee and surrounding joints.

Keywords: total knee replacement, TKA, biomechanics, contralateral, stair ascent

37. OSTEOARTHRITIS/KNEE**OA and hip abductor strength**

Knee. 2015 Jun 30. pii: S0968-0160(15)00140-4. doi: 10.1016/j.knee.2015.06.006.

Hip abductor strength in people with knee osteoarthritis: A cross-sectional study of reliability and association with function.

Tevald MA¹, Murray A², Luc BA³, Lai K⁴, Sohn D⁵, Pietrosimone B⁶.
Author information

Abstract**BACKGROUND:**

To investigate the clinical importance of hip abductor (HA) strength in people with knee osteoarthritis (OA), the purposes of this study were to 1) compare the association of HA strength and physical function to that of knee extensor (KE) strength and physical function, and 2) determine the reliability of the assessment of HA strength using a hand-held dynamometer.

METHODS:

Thirty-five individuals [58 years standard deviation 10 years old] with knee osteoarthritis participated. Physical function was assessed with performance-based [Get-Up and Go (GUG), stair climb and descent (SC), and five times chair rise (CR)] and self-reported (WOMAC function) measures. The relationship between strength and function was assessed using bivariate correlation and hierarchical multiple regression models. Reliability across sessions was assessed in 25 subjects.

RESULTS:

In the bivariate models, both KE and HA strength were both significantly associated with performance-based measures of function, but not WOMAC function. After controlling for anthropometric factors and KE strength in the hierarchical models, HA made significant independent contributions to the prediction of GUG and SC, but not CR or WOMAC function. The reliability of HA strength was excellent ($ICC_{2,3}=0.94$; 95% CI=0.86-0.97), while the minimum detectable change (MDC_{95}) was 0.29Nm/kg (95% CI=0.23-0.41).

CONCLUSION:

HA strength can be reliably measured and is closely associated with functional performance in people with knee OA.

CLINICAL RELEVANCE:

These results provide preliminary evidence suggesting that HA strength may be an important rehabilitation target for the conservative management of knee OA.

KEYWORDS: Arthritis; Gluteus medius; Quadriceps
PMID: 26142154

OA progression and muscle contraction

Increased Duration of Co-Contraction of Medial Knee Muscles is Associated with Greater Progression of Knee Osteoarthritis

Paul W. Hodges Wolbert van den Hoorn Tim V. Wrigley Rana S. Hinman Kelly-Ann Bowles Flavia Cicuttini Yuanyuan Wang Kim Bennell

Manual Therapy DOI: <http://dx.doi.org/10.1016/j.math.2015.07.004>

Highlights

- Prospective study of cartilage loss and co-contraction of knee muscles in knee OA
- Temporal parameters of knee muscle EMG during gait were measured at baseline
- Change in medial tibial cartilage volume measured over 12 months
- Longer medial knee muscle co-contraction duration relates to greater cartilage loss
- Longer duration of lateral muscle co-contraction relates to slower OA progression

Abstract**Background:**

As knee osteoarthritis (OA) cannot be cured, treatments that slow structural disease progression are a priority. Knee muscle activation has a potential role in OA pathogenesis. Although enhanced knee muscle co-contraction augments joint stability; this may speed structural disease progression; by increased joint load.

Objective:

This study investigated the relationship between cartilage loss and duration of co-contraction of medial/lateral knee muscles in medial knee OA.

Design:

Prospective cohort study.

Methods:

Medial (vastus medialis; semimembranosus) and lateral (vastus lateralis; biceps femoris) knee muscle myoelectric activity was recorded in 50 people with medial knee OA during natural speed walking at baseline. Medial tibial cartilage volume was measured from MRI at baseline and 12 months. Relationships between percent volume loss and duration of co-contraction of medial/lateral muscles around stance phase and ratio of duration of medial to lateral muscle co-contraction were evaluated with multiple linear regression.

Results:

Greater duration of medial muscle co-contraction and greater duration of medial relative to lateral co-contraction correlated positively with annual percent loss of medial tibial cartilage volume ($P=0.003$). Estimated cartilage loss was 0.14(95% confidence interval 0.23-0.05) greater for each increase in medial muscle co-contraction duration of 1% of the gait cycle. Lateral muscle co-contraction inversely correlated with cartilage loss.

Conclusion:

Data support the hypothesis that augmented medial knee muscle co-contraction underpins faster progression of medial knee OA. Increased duration of lateral muscle co-contraction protected against medial cartilage loss. Exercise and biomechanical interventions to change knee muscle activation patterns provide possible candidates to slow progression of knee OA.

Keywords:

Disease progression, Knee osteoarthritis, Electromyography, Co-contraction

Balance and OA testing

Phys Ther. 2015 Jul 16.

Clinical Tests of Standing Balance in the Knee Osteoarthritis Population: Systematic Review and Meta-Analysis.

Hatfield GL¹, Morrison A¹, Wenman M¹, Hammond C¹, Hunt MA¹.
Author information

Abstract

BACKGROUND:

People with knee osteoarthritis (OA) have a high prevalence of falls. Poor standing balance is one risk factor, but the extent of standing balance deficits in those with knee OA is unknown.

PURPOSE:

Summarize available data on standing balance in people with knee OA compared to people without, and across disease severity.

DATA SOURCES:

Medline, Embase, CINAHL, Web of Science through November 19, 2014.

STUDY SELECTION:

Studies on individuals with knee OA containing clinical, quantifiable measures of standing balance were included. Methodological quality was assessed by two reviewers using a 16-item quality index developed for non-randomized studies. Studies scoring >50% on the index were included.

DATA EXTRACTION:

Participant characteristics (age, sex, body mass index, OA severity, compartment, unilateral/bilateral) and balance outcomes were extracted by two reviewers. Standardized mean differences were pooled using a random-effects model.

DATA SYNTHESIS:

The search yielded 2715 papers; eight met selection and quality assessment criteria. Median score on the quality index was 13/17. People with knee OA consistently performed worse than healthy controls on the Step Test, Single Leg Stance Test, Functional Reach Test, Tandem Stance Test, and Community Balance and Mobility Scale. The pooled standardized mean difference was -1.64 [-2.58 to -0.69]. No differences were observed between varying degrees of malalignment, or between unilateral versus bilateral disease.

LIMITATIONS:

No studies compared between knee OA severities. Thus, expected changes in balance as the disease progresses remain unknown.

CONCLUSIONS:

Few studies compared knee OA to healthy controls, but those that did found that people with knee OA performed significantly worse. More research is needed to understand the extent of balance impairments in knee OA using easy-to-administer, clinically-available tests.

PMID:26183586

38 A. FOOT AND ANKLE**Posterior ankle impingement****Posterior ankle impingement in athletes: pathogenesis, imaging features and differential diagnoses**

Daichi Hayashi Frank W Roemer Pieter D'Hooghe Ali Guermazi

DOI: <http://dx.doi.org/10.1016/j.ejrad.2015.07.017>

Highlights

- •Posterior ankle impingement symptoms are due to bony or soft tissue lesions
- •MRI is particularly useful in confirming the diagnosis and planning therapy
- •Triplanar imaging with at least one FS T2W/PDW sagittal sequence is needed
- •Contrast-enhanced MRI is ideal for differentiating synovitis from effusion
- •Nontrauma differentials include posterior capsulitis, gout and rheumatoid arthritis

Abstract

Posterior ankle impingement is a clinical diagnosis which can be seen following a traumatic hyper-plantar flexion event and may lead to painful symptoms in athletes such as female dancers ('en pointe'), football players, javelin throwers and gymnasts. Symptoms of posterior ankle impingement are due to failure to accommodate the reduced interval between the posterosuperior aspect of the talus and tibial plafond during plantar flexion, and can be due to osseous or soft tissue lesions.

There are multiple causes of posterior ankle impingement. Most commonly, the structural correlates of impingement relate to post-traumatic synovitis and intra-articular fibrous bands-scar tissue, capsular scarring, or bony prominences. The aims of this pictorial review article is to describe different types of posterior ankle impingement due to traumatic and non-traumatic osseous and soft tissue pathology in athletes, to describe diagnostic imaging strategies of these pathologies, and illustrate their imaging features, including relevant differential diagnoses.

Keywords: ankle impingement, posterior, os trigonum, Stieda's process, posterior tibiotalar ligament, intermalleolar ligament

44. RHUMATOID ARTHRITIS

Smoking and RA progression

Ann Rheum Dis. 2015 Aug;74(8):1509-14. doi: 10.1136/annrheumdis-2013-204601. Epub 2014 Apr 4.

Current smoking status is a strong predictor of radiographic progression in early rheumatoid arthritis: results from the SWEFOT trial.

Saevarsdottir S¹, Rezaei H¹, Geborek P², Petersson I³, Ernestam S⁴, Albertsson K⁵, Forslind K⁶, van Vollenhoven RF⁷; SWEFOT study group.

Author information

Abstract

OBJECTIVES:

To study clinical predictors for radiographic progression after 1 year in an early rheumatoid arthritis (RA) trial.

METHODS:

In the SWEFOT trial population, disease modifying antirheumatic drug (DMARD) naïve RA patients started methotrexate; 3-month responders (DAS28 <3.2) continued (n=147), while non-responders were randomised to addition of sulfasalazine+hydroxychloroquine (n=130) or infliximab (n=128). X-rays were scored by the Sharp-van der Hejde score (SHS) method and radiographic progression was defined as a ≥ 5 increase after 1 year. Potential baseline predictors of radiographic progression were tested using multivariable logistic regression, adjusted for potential confounders.

RESULTS:

79 of 311 patients with available radiographs at baseline and follow-up had radiographic progression. The following baseline parameters were independent predictors of radiographic progression at 1 year: baseline erosions (adjusted OR=2.29, 95% CI 1.24 to 4.24), erythrocyte sedimentation rate (adjusted OR per tertile increase=1.72, 95% CI 1.12 to 2.65) and C-reactive protein (adjusted OR per tertile increase=1.52, 95% CI 1.03 to 2.26). Current smoking was an independent predictor of radiographic progression (adjusted OR=2.17, 95% CI 1.06 to 4.45). These results remained after further adjustment for treatment strategy. Three-dimensional matrix including current smoking status, erosions and C-reactive protein tertiles showed a 12-63% risk gradient from patients carrying none compared with all predictors. Rheumatoid factor (RF)/anti-cyclic citrullinated peptide (anti-CCP) positivity did not significantly predict radiographic progression using SHS increase ≥ 5 as cut-off. In a secondary exploratory analysis using cut-off >1, both RF and anti-CCP positivity were significant predictors in the unadjusted, but not the adjusted analyses. The other parameters also remained significant using this lower cut-off.

CONCLUSIONS:

In addition to previously described predictors, we identified smoking as a strong independent risk factor for radiographic progression in early RA.

TRIAL REGISTRATION NUMBER:

NCT00764725.

KEYWORDS: Early Rheumatoid Arthritis; Outcomes research; Smoking
PMID: 24706006

Family history

Ann Rheum Dis. 2015 Aug;74(8):1522-9. doi: 10.1136/annrheumdis-2013-205009. Epub 2014 Mar 31.

Improved performance of epidemiologic and genetic risk models for rheumatoid arthritis serologic phenotypes using family history.

Sparks JA¹, Chen CY², Jiang X³, Askling J⁴, Hiraki LT⁵, Malspeis S¹, Klareskog L⁴, Alfredsson L⁶, Costenbader KH¹, Karlson EW¹.

Author information

Abstract

OBJECTIVE:

To develop and validate rheumatoid arthritis (RA) risk models based on family history, epidemiologic factors and known genetic risk factors.

METHODS:

We developed and validated models for RA based on known RA risk factors, among women in two cohorts: the Nurses' Health Study (NHS, 381 RA cases and 410 controls) and the Epidemiological Investigation of RA (EIRA, 1244 RA cases and 971 controls). Model discrimination was evaluated using the area under the receiver operating characteristic curve (AUC) in logistic regression models for the study population and for those with positive family history. The joint effect of family history with genetics, smoking and body mass index (BMI) was evaluated using logistic regression models to estimate ORs for RA.

RESULTS:

The complete model including family history, epidemiologic risk factors and genetics demonstrated AUCs of 0.74 for seropositive RA in NHS and 0.77 for anti-citrullinated protein antibody (ACPA)-positive RA in EIRA. Among women with positive family history, discrimination was excellent for complete models for seropositive RA in NHS (AUC 0.82) and ACPA-positive RA in EIRA (AUC 0.83). Positive family history, high genetic susceptibility, smoking and increased BMI had an OR of 21.73 for ACPA-positive RA.

CONCLUSIONS:

We developed models for seropositive and seronegative RA phenotypes based on family history, epidemiological and genetic factors. Among those with positive family history, models using epidemiologic and genetic factors were highly discriminatory for seropositive and seronegative RA. Assessing epidemiological and genetic factors among those with positive family history may identify individuals suitable for RA prevention strategies.

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KEYWORDS: Epidemiology; Gene Polymorphism; Rheumatoid Arthritis
PMID: 24685909

45 A. MANUAL THERAPY LUMBAR & GENERAL

Somatization and worse outcomes with LBP in chiropractic

Somatization is associated with worse outcome in a chiropractic patient population with neck pain and low back pain

Manual Therapy , 07/22/2015 Ailliet L, et al.

The aim of this study is to determine if psychosocial factors are associated with outcome in patients with neck pain or low back pain. Somatization was the only variable consistently found to be associated with diminished perceived recovery, higher degree of neck or low back disability, and increased neck or low back pain.

Methods

- In a prospective, multi-center chiropractic practice-based cohort study in Belgium and The Netherlands, 917 patients, of which 326 with neck pain and 591 with low back pain, completed self-administered questionnaires at baseline, following the second visit, and at 1, 3, 6 and 12 months.
- Psychosocial factors assessed at baseline were: distress, depression, anxiety and somatization via the Four Dimensional Symptom Questionnaire, patient's beliefs regarding the effect of physical activity and work on their complaint via the Fear Avoidance beliefs Questionnaire, and social support via the Feij social support scale.
- Primary outcome measures were perceived recovery, pain intensity, and functional status which was measured with the Neck Disability Index and Oswestry Disability Index.
- A univariable regression analysis to estimate the relation between each psychological variable and outcome was followed by a multivariable multilevel regression analysis.

Results

-
- There were no differences in baseline patient characteristics between the patient population from Belgium and the Netherlands.
 - Somatization scores are consistently associated with perceived recovery, functional status and pain for both neck pain and low-back pain.
 - Depression was associated with poorer functioning in patients with LBP.
 - There was a small association between fear and function and pain for patients with neck pain or low-back pain.

48 A. STM**CTM and stabilization ex in shoulder pain****Cervical and scapulothoracic stabilization exercises with and without connective tissue massage for chronic mechanical neck pain: A prospective, randomized controlled trial**

Manual Therapy , 07/22/2015

Celenay ST, et al. –

This study was planned to assess and compare the effectiveness of cervical and scapulothoracic stabilization exercise treatment with and without connective tissue massage (CTM) on pain, anxiety, and the quality of life in patients with chronic mechanical neck pain (MNP). The study suggested that stabilization exercises with and without the CTM might be a useful treatment for patients with chronic MNP. However, stabilization exercises with CTM might be superior in improving pain intensity at night, pressure pain threshold, state anxiety and mental health compared to stabilization exercise alone.

Methods

- Sixty patients with chronic MNP (18-65 years) were recruited and randomly allocated into stabilization exercise with (Group 1, n=30) and without the CTM (Group 2, n=30).
- The program was carried out for 12 sessions, 3 days/week in 4 weeks.
- Pain intensity with Visual Analog Scale, pressure pain threshold with digital algometer (JTech Medical Industries, ZEVEX Company), level of anxiety with Spielberger State Trait Anxiety Inventory, and quality of life with Short Form-36 were evaluated before and after the treatment.

Results

- After the program, pain intensity and the level of anxiety decrease, physical health increase in Group 1 and 2 were found ($p<0.05$).
- Pressure pain threshold and mental health increase were detected in only Group 1 ($p<0.05$).
- The intergroup comparison showed that significant difference in pain intensity at night, pressure pain threshold, state anxiety and mental health were seen in favor of Group 1 ($p<0.05$).

52. EXERCISE**Exercise and decrease in inflammatory factors****Effects of home-based bench step exercise on inflammatory cytokines and lipid profiles in elderly Japanese females: A randomized controlled trial**

Yuichiro Nishida Keitaro Tanaka Megumi Hara Noriko Hirao Hiroaki Tanaka Takuro Tobina
Masaharu Ikeda Hiroshi Yamato Masanori Ohta

DOI: <http://dx.doi.org/10.1016/j.archger.2015.06.017>

Highlights

- Bench step exercises increased HDL-C in elderly females with lower baseline HDL-C.
- Step exercises decreased IFN- γ levels in elderly females with lower baseline HDL-C.
- The greater decrements in IFN- γ were associated with the greater increases in HDL-C.

Abstract**Purpose**

The purpose of the current study was to investigate the effects of a 12-week home-based bench step exercise program on inflammatory cytokines and lipid profiles in elderly females.

Methods

Sixty-two postmenopausal females (65–85 years of age) were randomized to either the bench step exercise group (n = 31) or the control group (n = 31). The subjects in the bench step exercise group were instructed to perform bench step exercises at the exercise intensity corresponding to lactate threshold (LT), three times per day 10–20 minutes each session, for a goal of ≥ 140 min/week at home for 12 weeks. At baseline and 12 weeks, circulating levels of nine inflammatory cytokines (high-molecular-weight adiponectin, interleukin-4 [IL-4], IL-5, IL-6, IL-8, IL-15, tumor necrosis factor- α [TNF- α], TNF- β and interferon- γ [IFN- γ]) and serum lipids including high-density lipoprotein cholesterol (HDL-C) were measured.

Results

The bench step training at the LT significantly increased HDL-C levels and decreased IFN- γ concentrations in the subjects with lower (< 63 mg/dL) baseline HDL-C levels ($p < 0.05$). The change in IFN- γ inversely correlated with the change in HDL-C in the exercise group ($\rho = -0.56$, $p < 0.01$), whereas this association was not observed in the control group. Additionally, principal component analysis-derived index of what we called “inflammatory status factor” was inversely associated with the changes in HDL-C in the exercise group.

Conclusion

The bench step exercise-induced reduction in the IFN- γ levels may partially explain the degree of improvement in the HDL-C levels with the exercise program.

Keywords:

Aerobic exercise, Aging, Interleukins, Inflammation, HDL-C

Better adherence with outdoor exercise

Menopause. 2015 Jul;22(7):731-40. doi: 10.1097/GME.0000000000000366.

Adherence to exercise and affective responses: comparison between outdoor and indoor training.

Lacharité-Lemieux M¹, Brunelle JP, Dionne IJ.
Author information

Abstract

OBJECTIVE:

Postmenopausal women, despite their increased cardiovascular risk, do not meet physical activity recommendations. Outdoor exercise bouts induce more positive affective responses than the same indoor exercise. Outdoor training could therefore increase exercise adherence. This study aims to compare the long-term effects of outdoor and indoor training on affective outcomes and adherence to exercise training in postmenopausal women.

METHODS:

In a 12-week randomized trial, 23 healthy (body mass index, 22-29 kg/m) postmenopausal women (aged 52-69 y) were assigned to either outdoor training or indoor training and performed three weekly 1-hour sessions of identical aerobic and resistance training. Adherence, affective valence (Feeling Scale), affective states (Exercise-Induced Feeling Inventory), and rating of perceived exertion were measured during exercise sessions, whereas depression symptoms (Beck Depression Inventory) and physical activity level (Physical Activity Scale for the Elderly) were assessed before and after the intervention.

RESULTS:

After 12 weeks of training, exercise-induced changes in affective valence were higher for the outdoor training group ($P \leq 0.05$). A significant group-by-time interaction was found for postexercise tranquility ($P \leq 0.01$), with a significant increase outdoors and a significant decrease indoors (both $P \leq 0.05$). A time effect was revealed for positive engagement, which decreased across time in the indoor group ($P \leq 0.05$). Adherence to training (97% vs 91%) was significantly higher outdoors ($P \leq 0.01$). Between baseline and week 12, depression symptoms decreased and physical activity level increased only for the outdoor group ($P \leq 0.01$ and $P \leq 0.05$, respectively).

CONCLUSIONS:

Outdoor training enhances affective responses to exercise and leads to greater exercise adherence than indoor training in postmenopausal women.

PMID:25423324

53. CORE**Changes in multifidus in LBP**

Spine (Phila Pa 1976). 2015 Jul 15;40(14):1057-71. doi: 10.1097/BRS.0000000000000972.

Multifidus Muscle Changes After Back Injury Are Characterized by Structural Remodeling of Muscle, Adipose and Connective Tissue, but Not Muscle Atrophy: Molecular and Morphological Evidence.

Hodges PW¹, James G, Blomster L, Hall L, Schmid A, Shu C, Little C, Melrose J.
Author information

Abstract

STUDY DESIGN:

Longitudinal case-controlled animal study.

OBJECTIVE:

To investigate putative cellular mechanisms to explain structural changes in muscle and adipose and connective tissues of the back muscles after intervertebral disc (IVD) injury.

SUMMARY OF BACKGROUND DATA:

Structural back muscle changes are ubiquitous with back pain/injury and considered relevant for outcome, but their exact nature, time course, and cellular mechanisms remain elusive. We used an animal model that produces phenotypic back muscle changes after IVD injury to study these issues at the cellular/molecular level.

METHODS:

Multifidus muscle was harvested from both sides of the spine at L1-L2 and L3-L4 IVDs in 27 castrated male sheep at 3 (n = 10) or 6 (n = 17) months after a surgical anterolateral IVD injury at both levels. Ten control sheep underwent no surgery (3 mo, n = 4; 6 mo, n = 6). Tissue was harvested at L4 for histological analysis of cross-sectional area of muscle and adipose and connective tissue (whole muscle), plus immunohistochemistry to identify proportion and cross-sectional area of individual muscle fiber types in the deepest fascicle. Quantitative polymerase chain reaction measured gene expression of typical cytokines/signaling molecules at L2.

RESULTS:

Contrary to predictions, there was no multifidus muscle atrophy (whole muscle or individual fiber). There was increased adipose and connective tissue (fibrotic proliferation) cross-sectional area and slow-to-fast muscle fiber transition at 6 but not 3 months. Within the multifidus muscle, increases in the expression of several cytokines (tumor necrosis factor α and interleukin-1 β) and molecules that signal trophic/atrophic processes for the 3 tissue types (e.g., growth factor pathway [IGF-1, PI3k, Akt1, mTOR], potent tissue modifiers [calcineurin, PCG-1 α , and myostatin]) were present.

CONCLUSION:

This study provides cellular evidence that refutes the presence of multifidus muscle atrophy accompanying IVD degeneration at this intermediate time point. Instead, adipose/connective tissue increased in parallel with the expression of the genes that provide putative mechanisms for multifidus structural remodeling. This provides novel targets for pharmacological and physical interventions.

LEVEL OF EVIDENCE:

N/A.

56. ATHLETICS**Hypohydration**

Sports Med. 2015 Jul 16.

Effect of Hypohydration on Muscle Endurance, Strength, Anaerobic Power and Capacity and Vertical Jumping Ability: A Meta-Analysis.

Savoie FA¹, Kenefick RW, Ely BR, Chevront SN, Goulet ED.

Author information

Abstract

BACKGROUND: How hypohydration impacts non-bodyweight (BW)-dependent muscle performance and vertical jumping ability remains to be determined using meta-analytic procedures.

OBJECTIVES: Our objective was to determine the impact of hypohydration on muscle endurance, strength, anaerobic power and capacity and vertical jumping ability using a meta-analytic approach.

DATA SOURCES: Studies were located using database searches and cross-referencing.

SYNTHESIS METHODS: Effect summaries were obtained using random-effects models; method of moments mixed-effects analysis-of-variance-like procedures were used to determine differences between groups; and restricted maximum likelihood random-effects meta-regressions were performed to determine relationships between variables, impact of confounders, and interaction effects.

RESULTS: A total of 28 manuscripts met the inclusion criteria, producing six (upper body muscle endurance), ten (lower body muscle endurance), 14 (upper body muscle strength), 25 (lower body muscle strength), nine (muscle anaerobic power), nine (muscle anaerobic capacity), and 12 (vertical jumping ability) effect estimates. Hypohydration impaired overall muscle endurance by $8.3 \pm 2.3 \%$ ($P < 0.05$), with no significant difference between upper body ($-8.4 \pm 3.3 \%$) and lower body ($-8.2 \pm 3.2 \%$). As a whole, muscle strength fell by $5.5 \pm 1.0 \%$ ($P < 0.05$) with hypohydration; the difference between lower ($-3.7 \pm 1.8 \%$) and upper ($-6.2 \pm 1.1 \%$) body was non-significant. Anaerobic power ($-5.8 \pm 2.3 \%$) was significantly altered with hypohydration, but anaerobic capacity ($-3.5 \pm 2.3 \%$) and vertical jumping ability ($0.9 \pm 0.7 \%$) were not. No significant correlations were observed between the changes in any of the muscle performance variables or vertical jumping ability and the changes in hypohydration level. Using an active procedure to dehydrate participants decreased muscle performance by an additional $5.4 \pm 1.9 \%$ (2.76-fold) ($P = 0.02$) compared with using a passive dehydration procedure. Trained individuals demonstrated a $3.3 \pm 1.7 \%$ (1.76-fold) ($P = 0.06$) lesser decrease in muscle performance with hypohydration than did untrained individuals.

CONCLUSION: Hypohydration, or factors associated with dehydration, are likely to be associated with practically important decrements in muscle endurance, strength, and anaerobic power and capacity. However, their impact on non-BW-dependent muscle performance is substantially mitigated in trained individuals or when hypohydration is induced passively. Conversely, it is possible that body water loss ($\sim 3 \%$ BW) may improve performance in BW-dependent tasks such as vertical jumping ability.

PMID: 26178327

61. FIBROMYALGIA**Increase incidence in hemodialysis patients**

Hemodial Int. 2015 Jul 22. doi: 10.1111/hdi.12332.

Fibromyalgia syndrome in Turkish hemodialysis patients.

Leblebici B¹, Özelsancak R², Yılmaz EE¹, Doruk P¹.

Author information

Abstract

The aim of our study was to evaluate the frequency of fibromyalgia syndrome (FMS) in hemodialysis (HD) patients and to assess whether this syndrome is associated with gender, age, duration of HD, or various laboratory parameters. This study was composed of 221 chronic HD patients (99 females and 122 males), and we recorded each participant's age, gender, causes of kidney failure, HD duration, education level, and symptoms related to FMS, which was diagnosed according to the 2010 American College of Rheumatology criteria. We documented the laboratory parameters for all patients. In addition, patients with FMS filled out the Fibromyalgia Impact Questionnaire. Twenty-two patients met the diagnostic criteria for FMS (9%), and there were no statistically significant differences related to age, gender, or HD duration between FMS and non-FMS groups ($P > 0.05$). In addition, the education levels were lower in patients diagnosed with FMS ($P < 0.05$), and there were statistically significant differences related to sleep disturbance, fatigue, and cognitive symptoms between the two groups ($P < 0.05$) as well. However, their laboratory parameters were similar ($P > 0.05$).

There was a higher prevalence of FMS in HD patients than in the general population. Sleep disturbances, fatigue, education level, and cognitive symptoms were associated with FMS, but there was no correlation between the laboratory parameters and this condition.

KEYWORDS: Fibromyalgia; hemodialysis; pain

PMID: 26198740

62 A. NUTRITION/VITAMINS**Olive oil and decrease diabetes**

Am J Clin Nutr. 2015 Jul 8. pii: ajcn112029.

Olive oil consumption and risk of type 2 diabetes in US women.

Guasch-Ferré M¹, Hruby A², Salas-Salvadó J³, Martínez-González MA⁴, Sun Q⁵, Willett WC⁵, Hu FB⁶.

Author information

Abstract

BACKGROUND:

Olive oil has been shown to improve various cardiometabolic risk factors. However, to our knowledge, the association between olive oil intake and type 2 diabetes (T2D) has never been evaluated in the US population.

OBJECTIVE:

We aimed to examine the association between olive oil intake and incident T2D.

DESIGN:

We followed 59,930 women aged 37-65 y from the Nurses' Health Study (NHS) and 85,157 women aged 26-45 y from the NHS II who were free of diabetes, cardiovascular disease, and cancer at baseline. Diet was assessed by validated food-frequency questionnaires, and data were updated every 4 y. Incident cases of T2D were identified through self-report and confirmed by supplementary questionnaires.

RESULTS:

After 22 y of follow-up, we documented 5738 and 3914 incident cases of T2D in the NHS and NHS II, respectively. With the use of Cox regression models with repeated measurements of diet and multivariate adjustment for major lifestyle and dietary factors, the pooled HR (95% CI) of T2D in those who consumed >1 tablespoon (>8 g) of total olive oil per day compared with those who never consumed olive oil was 0.90 (0.82, 0.99). The corresponding HRs (95% CIs) were 0.95 (0.87, 1.04) for salad dressing olive oil and 0.85 (0.74, 0.98) for olive oil added to food or bread. We estimated that substituting olive oil (8 g/d) for stick margarine, butter, or mayonnaise was associated with 5%, 8%, and 15% lower risk of T2D, respectively, in the pooled analysis of both cohorts.

CONCLUSIONS:

Our results suggest that higher olive oil intake is associated with modestly lower risk of T2D in women and that hypothetically substituting other types of fats and salad dressings (stick margarine, butter, and mayonnaise) with olive oil is inversely associated with T2D.

KEYWORDS: Nurses' Health Study; diet; dietary fat; olive oil; salad dressing; type 2 diabetes
PMID: 26156740

Vit D and Alzheimer's

Neurobiol Dis. 2015 Jul 6. pii: S0969-9961(15)30004-8. doi: 10.1016/j.nbd.2015.06.020.

Vitamin D Deficiency and Alzheimer Disease: Common Links.

Keeney JT¹, Allan Butterfield D².
Author information

Abstract

Vitamin D (VitD) deficiency is a worldwide epidemic with estimates of 1 billion affected. In addition to the classically known roles of VitD in calcium regulation and bone health, recent studies demonstrated VitD to be an essential/vital neurosteroid hormone playing a wide variety of essential protective and regulatory roles in the brain. This paper reviews much of the mounting evidence of the detrimental effects of VitD deficiency on the brain and the association of many of these common links with Alzheimer's disease (AD). We also discuss the beneficial effects seen from VitD supplementation.

Based on this accumulation of studies, we propose that VitD screening should be performed at least in those individuals at risk for VitD deficiency and AD. With appropriate medical counsel, those found to be VitD deficient should be considered for appropriate supplementation.

KEYWORDS: Alzheimer's disease; Vitamin D; amyloid beta-peptide; deficiency; signaling; therapeutic intervention

PMID: 26160191

63. PHARMACOLOGY**Opioid use**

Neurology. 2015 Jul 2. pii: 10.1212/WNL.0000000000001766.

Opioids for chronic noncancer pain: To prescribe or not to prescribe-What is the question?

Nadeau SE¹.

Author information

Abstract

The recent American Academy of Neurology position paper by Franklin, "Opioids for chronic noncancer pain," suggests that the benefits of opioid treatment are very likely to be substantially outweighed by the risks and recommends avoidance of doses above 80-120 mg/day morphine equivalent. However, close reading of the primary literature supports a different conclusion: opioids have been shown in randomized controlled trials (RCTs) to be highly effective in the treatment of chronic nonmalignant pain; long-term follow-up studies have shown that this effectiveness can be maintained; and effectiveness has been limited in many clinical trials by failure to take into account high variability in dose requirements, failure to adequately treat depression, and use of suboptimal outcome measures. Frequency of side effects in many RCTs has been inflated by overly rapid dose titration and failure to appreciate the high interindividual variability in side effect profiles.

The recent marked increase in incidence of opioid overdose is of grave concern, but there is good reason to believe that it has been somewhat exaggerated. Potential causes of overdose include inadequately treated depression; inadequately treated pain, particularly when compounded by hopelessness; inadvertent overdose; concurrent use of alcohol; and insufficient practitioner expertise. Effective treatment of pain can enable large numbers of patients to lead productive lives and improve quality of life. Effective alleviation of suffering associated with pain falls squarely within the physician's professional obligation. Existing scientific studies provide the basis for many improvements in pain management that can increase effectiveness and reduce risk. Many potentially useful areas of further research can be identified.

PMID: 26138946

NSAIDS AND HEMORRAGE

BMJ. 2015 Jul 14;351:h3517. doi: 10.1136/bmj.h3517.

Risk of intracranial haemorrhage in antidepressant users with concurrent use of non-steroidal anti-inflammatory drugs: nationwide propensity score matched study.

Shin JY¹, Park MJ², Lee SH¹, Choi SH¹, Kim MH¹, Choi NK³, Lee J³, Park BJ⁴.

[Author information](#)

Abstract

OBJECTIVE: To define the risk of intracranial haemorrhage among patients treated with antidepressants and non-steroid anti-inflammatory drugs (NSAIDs), compared with the risk among those treated with antidepressants without NSAIDs.

DESIGN: Retrospective nationwide propensity score matched cohort study.

SETTING: Korean nationwide health insurance database between 1 January 2009 and 31 December 2013.

PARTICIPANTS: Patients who began receiving antidepressants for the first time (index date) without a history of having received a prescription for antidepressants during the preceding year. Patients who had been diagnosed as having cerebrovascular diseases within a year before the index date were excluded.

MAIN OUTCOME MEASURE: Time to first hospital admission with intracranial haemorrhage within 30 days after drug use. Matched Cox regression models were used to compare the risk of intracranial haemorrhage among patients who were treated with antidepressants with and without NSAIDs, after propensity score matching with a 1:1 ratio.

RESULTS: After propensity score estimation and matching in a 1:1 ratio, the cohort used in the analysis included 4 145 226 people. The 30 day risk of intracranial haemorrhage during the entire study period was higher for combined use of antidepressants and NSAIDs than for use of antidepressants without NSAIDs (hazard ratio 1.6, 95% confidence interval 1.32 to 1.85). No statistically meaningful differences were found in risk of intracranial haemorrhage between the antidepressant drug classes.

CONCLUSIONS: Combined use of antidepressants and NSAIDs was associated with an increased risk of intracranial haemorrhage within 30 days of initial combination.

PMID:26173947

Aspirin may help MS

BMC Med. 2015 Jun 29;13(1):153. doi: 10.1186/s12916-015-0394-4.

Aspirin and multiple sclerosis.

Tsau S¹, Emerson MR², Lynch SG³, LeVine SM⁴.

[Author information](#)

Abstract

Aspirin is widely used to lessen the risks of cardiovascular events. Some studies suggest that patients with multiple sclerosis have an increased risk for some cardiovascular events, for example, venous thromboembolism and perhaps ischemic strokes, raising the possibility that aspirin could lessen these increased risks in this population or subgroups (patients with limited mobility and/or antiphospholipid antibodies). However, aspirin causes a small increased risk of hemorrhagic stroke, which is a concern as it could potentially worsen a compromised blood-brain barrier. Aspirin has the potential to ameliorate the disease process in multiple sclerosis (for example, by limiting some components of inflammation), but aspirin also has the potential to inhibit mitochondrial complex I activity, which is already reduced in multiple sclerosis. In an experimental setting of a cerebral ischemic lesion, aspirin promoted the proliferation and/or differentiation of oligodendrocyte precursors, raising the possibility that aspirin could facilitate remyelination efforts in multiple sclerosis. Other actions by aspirin may lead to small improvements of some symptoms (for example, lessening fatigue). Here we consider potential benefits and risks of aspirin usage by patients with multiple sclerosis.

PMID: 26123634