

1. LUMBAR SPINE

Spondylolysis healing

Spine (Phila Pa 1976). 2017 Jun 15;42(12):E716-E720.

Conservative Treatment for Bony Healing in Pediatric Lumbar Spondylolysis.

Sakai T¹, Tezuka F, Yamashita K, Takata Y, Higashino K, Nagamachi A, Sairyo K.

Abstract

STUDY DESIGN: A retrospective review of prospectively collected data.

OBJECTIVE: The aim of this study was to investigate recent outcomes of conservative treatment for bony healing in pediatric patients with lumbar spondylolysis (LS) and to identify the problems that need to be resolved.

SUMMARY OF BACKGROUND DATA: Several diagnostic and therapeutic techniques for LS have been developed recently, leading to better outcomes for bony healing.

METHODS: Overall, 63 consecutive pediatric patients (53 boys and 10 girls) with LS (average age: 13.8 years; range: 6-17 years) were analyzed. Diagnosis and staging (very early, early, progressive, and terminal) were based on multidetector computed tomography (CT) scans and magnetic resonance imaging (MRI). For all patients except those with terminal-stage pars defect, conservative treatment included rest, avoidance of sports, and the use of a thoraco-lumbo-sacral-type trunk brace. Follow-up MRI was performed monthly. When the signal changes resolved, CT scans were obtained to assess bony healing.

RESULTS: Three patients dropped out during the study period. A total of 60 patients were included (50 boys and 10 girls) in this study (follow-up rate: 95.2%), with 86 instances of LS (very early: 36, early: 16, progressive: 15, terminal: 19) in 65 laminae. In the very early stage, the bony healing rate was 100%, and average treatment period was 2.5 months (range: 1-7 months). In the early stage, the bony healing rate was 93.8%, and the average treatment period was 2.6 months (range: 1-6 months). In the progressive stage, the bony healing rate was 80.0%, and the average treatment period was 3.6 months (range: 3-5 months). The average overall recurrence rate was 26.1%. All patients showing recurrence eventually achieved bony healing.

CONCLUSION: High bony healing rates and short treatment periods were observed with conservative treatment in pediatric patients with LS. However, the recurrence rates were relatively high. This issue should be targeted in future studies.

LEVEL OF EVIDENCE: 2.

CP fusions**Related Quality of Life and Care Giver Burden Following Spinal Fusion in Children With Cerebral Palsy.**

DiFazio RL¹, Miller PE, Vessey JA, Snyder BD.

STUDY DESIGN:

A prospective longitudinal cohort.

OBJECTIVE:

The objective of this study was to evaluate changes in caregivers' perceptions of health-related quality of life (HRQOL) and caregiver burden in children with severe cerebral palsy (CP) following spinal fusion.

SUMMARY OF BACKGROUND DATA:

Progressive scoliosis is common in nonambulatory children with CP; the utility of spine fusion has been long debated and prospective evaluations of patient reported outcomes are limited.

METHODS:

Children 3 to 21 years old, gross motor classification system (GMFCS) IV-V CP, scheduled for spine fusion were enrolled consecutively from September 2011 to March 2014. Caregivers completed the CPCHILD and ACEND pre-operatively and at 6 weeks, 3, 6, 12, and 24 months postoperatively. Changes in CPCHILD and ACEND scores from preoperative to 1 and 2 years after surgery were assessed using paired t tests. Correlations between preoperative Cobb angle and CPCHILD and ACEND scores were evaluated using Pearson's correlation analysis.

RESULTS:

Twenty-six GMFCS IV-V CP patients with severe scoliosis treated with spine fusion were included. Mean age was 14 years, 50% male, and 46% had instrumentation to the pelvis. Average preoperative Cobb angle was 68.9° (SD 25.68) with an average improvement of 76%. The CPCHILD score increased by 9.8 points above baseline [95% confidence interval (95% CI): 3.4-16.2] at 1 year postoperatively (P=0.005). However, at 2 years, the CPCHILD score regressed to baseline (P=0.40). ACEND scores did not change from baseline scores at 1-year (P=0.09) and 2-year (P=0.72) follow-up, reflecting that caregiver burden is little changed by spine fusion. There was no correlation between preoperative Cobb angle and CPCHILD score (P=0.52) or ACEND score (P=0.56) at 1-year or 2-year follow-up (P=0.69, P=0.90). Children with Cobb angle $\leq 75^\circ$ experienced more improvement 1 year after surgery than children with Cobb angle $>75^\circ$.

CONCLUSION:

HRQOL improves 1 year following spine fusion but regresses to baseline after 2 years. Caregiver burden was unchanged following spine fusion.

LEVEL OF EVIDENCE: 2.

2. LBP

Sciatica risk factors

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Risk factors for sciatica leading to hospitalization.

Euro U^{1,2,3,4,5}, Knekt P⁶, Rissanen H⁶, Aromaa A⁶, Karppinen J^{7,8}, Heliövaara M⁶.

Abstract

PURPOSE:

To study the known or suspected risk factors for sciatica: Tallness, overweight, smoking, leisure-time physical exercise, self-reported health and occupation, and how they predict hospitalizations due to sciatica. Only a few cohort studies have previously focused on the risk factors for sciatica.

METHODS:

The 13,095 subjects, free from low back disorders at the baseline in 1973-1976 were followed up to the end of 2011 via the Care Register for Health Care. Along with an invitation to the health examination, a basic questionnaire concerning lifestyle factors was sent to participants. The outcome measure was incident sciatica leading to hospitalization.

RESULTS:

Altogether 702 incident sciatica cases occurred. Among men, the adjusted hazard ratio (HR) with 95% confidence interval (CI) was 2.57 (95% CI 1.47-4.50) in metal or machine work, and 1.44 (1.06-1.95) in other industrial work, compared to that in white-collar occupations. Among women, the corresponding risk estimates were 1.81 (1.18-2.78) for nurses and related occupations, 1.56 (1.05-2.31) for sales workers, and 1.46 (1.03-2.08) for industrial workers. Among men, physical exercise during leisure predicted a decrease in the risk of sciatica (0.74; 0.55-1.00); this association was significantly pronounced in white-collar occupations (0.38; 0.18-0.88). Among women, the association between body mass index and the risk of sciatica was only modest, but varied greatly between different occupations.

CONCLUSIONS:

Physically demanding work is a strong risk factor for sciatica. Leisure-time physical activity seems to protect men against sciatica, while overweight is a risk factor among women. However, occupation substantially modifies these associations.

KEYWORDS:

Care Register for Health Care; Hospitalization; Interactions; Occupation; Sciatica

Physical activity protects against LBP**Does leisure time physical activity protect against low back pain? Systematic review and meta-analysis of 36 prospective cohort studies.**Shiri R¹, Falah-Hassani K².**BACKGROUND:**

There are plausible mechanisms whereby leisure time physical activity may protect against low back pain (LBP) but there have been no quality systematic reviews and meta-analyses of the subject.

OBJECTIVE:

This review aims to assess the effect of leisure time physical activity on non-specific LBP.

METHODS:

Literature searches were conducted in PubMed, Embase, Web of Science, Scopus and Google Scholar databases from their inception through July 2016. Methodological quality of included studies was evaluated. A random-effects meta-analysis was performed, and heterogeneity and publication bias were assessed.

RESULTS:

Thirty-six prospective cohort studies (n=158 475 participants) qualified for meta-analyses. Participation in sport or other leisure physical activity reduced the risk of frequent or chronic LBP, but not LBP for >1 day in the past month or past 6-12 months. Risk of frequent/chronic LBP was 11% lower (adjusted risk ratio (RR)=0.89, CI 0.82 to 0.97, I²=31%, n=48 520) in moderately/highly active individuals, 14% lower (RR=0.86, CI 0.79 to 0.94, I²=0%, n=33 032) in moderately active individuals and 16% lower (RR=0.84, CI 0.75 to 0.93, I²=0%, n=33 032) in highly active individuals in comparison with individuals without regular physical activity. For LBP in the past 1-12 months, adjusted RR was 0.98 (CI 0.93 to 1.03, I²=50%, n=32 654) for moderate/high level of activity, 0.94 (CI 0.84 to 1.05, I²=3%, n=8549) for moderate level of activity and 1.06 (CI 0.89 to 1.25, I²=53%, n=8554) for high level of activity.

CONCLUSIONS:

Leisure time physical activity may reduce the risk of chronic LBP by 11%-16%. The finding, however, should be interpreted cautiously due to limitations of the original studies. If this effect size is proven in future research, the public health implications would be substantial.

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KEYWORDS:

Back pain; epidemiology; exercise; hospitalisation; incidence; leisure activities; sport

What works Yoga or PT

Ann Intern Med. 2017 Jun 20.

Yoga, Physical Therapy, or Education for Chronic Low Back Pain: A Randomized Noninferiority Trial.

Saper RB¹, Lemaster C¹, Delitto A¹, Sherman KJ¹, Herman PM¹, Sadikova E¹, Stevans J¹, Keosaian JE¹, Cerrada CJ¹, Femia AL¹, Roseen EJ¹, Gardiner P¹, Barnett KG¹, Faulkner C¹, Weinberg J¹.

Abstract**BACKGROUND:**

Yoga is effective for mild to moderate chronic low back pain (cLBP), but its comparative effectiveness with physical therapy (PT) is unknown. Moreover, little is known about yoga's effectiveness in underserved patients with more severe functional disability and pain.

OBJECTIVE: To determine whether yoga is noninferior to PT for cLBP.

DESIGN: 12-week, single-blind, 3-group randomized noninferiority trial and subsequent 40-week maintenance phase. (ClinicalTrials.gov: NCT01343927).

SETTING: Academic safety-net hospital and 7 affiliated community health centers.

PARTICIPANTS:

320 predominantly low-income, racially diverse adults with nonspecific cLBP.

INTERVENTION:

Participants received 12 weekly yoga classes, 15 PT visits, or an educational book and newsletters. The maintenance phase compared yoga drop-in classes versus home practice and PT booster sessions versus home practice.

MEASUREMENTS:

Primary outcomes were back-related function, measured by the Roland Morris Disability Questionnaire (RMDQ), and pain, measured by an 11-point scale, at 12 weeks. Prespecified noninferiority margins were 1.5 (RMDQ) and 1.0 (pain). Secondary outcomes included pain medication use, global improvement, satisfaction with intervention, and health-related quality of life.

RESULTS: One-sided 95% lower confidence limits were 0.83 (RMDQ) and 0.97 (pain), demonstrating noninferiority of yoga to PT. However, yoga was not superior to education for either outcome. Yoga and PT were similar for most secondary outcomes. Yoga and PT participants were 21 and 22 percentage points less likely, respectively, than education participants to use pain medication at 12 weeks. Improvements in yoga and PT groups were maintained at 1 year with no differences between maintenance strategies. Frequency of adverse events, mostly mild self-limited joint and back pain, did not differ between the yoga and PT groups.

LIMITATIONS Participants were not blinded to treatment assignment. The PT group had disproportionate loss to follow-up.

CONCLUSION: A manualized yoga program for nonspecific cLBP was noninferior to PT for function and pain.

Kinesio taping and postural control**The effect of Kinesio Taping on postural control in subjects with non-specific chronic low back pain**

Soheila Abbasi, Zahra Rojhani-Shirazi

Abstract**Purpose**

The aim of this study was to investigate the possible alterations in postural control during upright standing in subjects with non-specific chronic low back pain and the effect of Kinesio taping on the postural control.

Methods

Twenty subjects with non-specific chronic low back pain and twenty healthy subjects participated in this study. The center of pressure excursion was evaluated before the intervention for both groups, and immediately after intervention for the low back pain group. Independent sample *t*-test, Mann-Whitney test and repeated measure ANOVA were used for the statistical analysis of the data.

Results

There were significant differences in the center of pressure excursion between the low back pain group versus the healthy group. The results of the ANOVA demonstrated a statistically significant difference in the mean COP displacement and velocity before Kinesio Taping, immediately after, and 24 h after in the low back pain group.

Conclusions

There are poor postural control mechanisms in subjects with non-specific chronic low back pain. Kinesio taping seems to change postural control immediately and have lasting effects until the day after.

5. SURGERY

Spondylo management

Decompression plus fusion versus decompression alone for degenerative lumbar spondylolisthesis: a systematic review and meta-analysis

Hai-Feng Liang

Shu-Hao Liu

Zi-Xian Chen

Qin-Ming Fei [Email author](#)

Abstract

Purpose

To compare the clinical effectiveness of decompression plus fusion and decompression alone for patients with degenerative lumbar spondylolisthesis, a systematic review and meta-analysis of all available evidence was performed.

Methods

A search of the literature was conducted on PubMed/MEDLINE, EMBASE, and the Cochrane Collaboration Library. Relevant studies comparing decompression plus fusion and decompression alone were selected according to eligibility criteria. Predefined endpoints were extracted and meta-analyzed from the identified studies.

Results

Four randomized controlled trials and 13 observational studies were eligible. The pooled data revealed that fusion was associated with significantly higher rates of satisfaction and lower leg pain scores when compared with decompression alone. However, fusion significantly increased the intraoperative blood loss, operative time and hospital stay. Both techniques had similar ODI, back pain scores, complication rate, and reoperation rate.

Conclusions

Based on the available evidence, decompression plus fusion maybe be better than decompression alone in the treatment of degenerative spondylolisthesis. Fusion had advantages of improvement of clinical satisfaction, as well as reduction of postoperative leg pain, with similar complication rate to decompression alone.

10 A. CERVICAL SPINE**Validity of integrity tests**

European Spine Journal pp 1–17

Reliability and validity of clinical tests to assess the anatomical integrity of the cervical spine in adults with neck pain and its associated disorders: Part 1—A systematic review from the Cervical Assessment and Diagnosis Research Evaluation (CADRE)**Collaboration****Abstract****Objective**

To determine the reliability and validity of clinical tests to assess the anatomical integrity of the cervical spine in adults with neck pain and its associated disorders.

Methods

We updated the systematic review of the 2000–2010 Bone and Joint Decade Task Force on Neck Pain and its Associated Disorders. We also searched the literature to identify studies on the reliability and validity of Doppler velocimetry for the evaluation of cervical arteries. Two independent reviewers screened and critically appraised studies. We conducted a best evidence synthesis of low risk of bias studies and ranked the phases of investigations using the classification proposed by *Sackett and Haynes*.

Results

We screened 9022 articles and critically appraised 8 studies; all 8 studies had low risk of bias (three reliability and five validity Phase II–III studies). Preliminary evidence suggests that the extension–rotation test may be reliable and has adequate validity to rule out pain arising from facet joints. The evidence suggests variable reliability and preliminary validity for the evaluation of cervical radiculopathy including neurological examination (manual motor testing, dermatomal sensory testing, deep tendon reflexes, and pathological reflex testing), Spurling’s and the upper limb neurodynamic tests. No evidence was found for doppler velocimetry.

Conclusions

Little evidence exists to support the use of clinical tests to evaluate the anatomical integrity of the cervical spine in adults with neck pain and its associated disorders. We found preliminary evidence to support the use of the extension–rotation test, neurological examination, Spurling’s and the upper limb neurodynamic tests.

Facet joint injury

Spine (Phila Pa 1976). 2017 Jun 15;42(12):E695-E701. doi: 10.1097/BRS.0000000000001934.

Painful Cervical Facet Joint Injury Is Accompanied by Changes in the Number of Excitatory and Inhibitory Synapses in the Superficial Dorsal Horn That Differentially Relate to Local Tissue Injury Severity.

Ita ME¹, Crosby ND, Bulka BA, Winkelstein BA.

Author information

Abstract

STUDY DESIGN:

Immunohistochemistry labeled pre- and postsynaptic structural markers to quantify excitatory and inhibitory synapses in the spinal superficial dorsal horn at 14 days after painful facet joint injury in the rat.

OBJECTIVE:

The objective of this study was to investigate the relationship between pain and synapse density in the spinal cord after facet injury.

SUMMARY OF BACKGROUND DATA:

Neck pain is a major contributor to disability and often becomes chronic. The cervical facet joints are susceptible to loading-induced painful injury, initiating spinal central sensitization responses. Although excitatory synapse plasticity has been reported in the superficial dorsal horn early after painful facet injury, whether excitatory and/or inhibitory synapse density is altered at a time when pain is maintained is unknown.

METHODS:

Rats underwent either a painful C6/C7 facet joint distraction or sham surgery. Mechanical hyperalgesia was measured and immunohistochemistry techniques for synapse quantification were used to quantify excitatory and inhibitory synapse densities in the superficial dorsal horn at day 14. Logarithmic correlation analyses evaluated whether the severity of facet injury correlated with either behavioral or synaptic outcomes.

RESULTS:

Facet joint injury induces pain that is sustained until day 14 ($P < 0.001$) and both significantly greater excitatory synapse density ($P = 0.042$) and lower inhibitory synapse density ($P = 0.0029$) in the superficial dorsal horn at day 14. Injury severity is significantly correlated with pain at days 1 ($P = 0.0011$) and 14 ($P = 0.0002$), but only with inhibitory, not excitatory, synapse density ($P = 0.0025$) at day 14.

CONCLUSION:

This study demonstrates a role for structural plasticity in both excitatory and inhibitory synapses in the maintenance of facet-mediated joint pain, and that altered inhibitory, but not excitatory, synapse density correlates to the severity of painful joint injury. Understanding the functional consequences of this spinal structural plasticity is critical to elucidate mechanisms of chronic joint pain.

12 B. CERVICAL SURGERIES

Impact of diabetes on surgical outcomes

Spine (Phila Pa 1976). 2017 Jun 15;42(12):E708-E715. doi: 10.1097/BRS.0000000000001947.

Characteristics of Residual Symptoms After Laminoplasty in Diabetic Patients With Cervical Spondylotic Myelopathy: A Prospective Cohort Study.

Machino M¹, Imagama S, Ando K, Kobayashi K, Hida T, Ito K, Tsushima M, Matsumoto A, Tanaka S, Morozumi M, Ito K, Kato F, Nishida Y, Ishiguro N.

Abstract

STUDY DESIGN:

A prospective cohort study.

OBJECTIVE:

The purpose of this study was to compare cervical laminoplasty outcomes between diabetic and nondiabetic patients with cervical spondylotic myelopathy (CSM), and to characterize residual symptoms of diabetic patients.

SUMMARY OF BACKGROUND DATA:

Diabetes is one of the most frequent comorbidities in CSM patients. However, no report has elucidated residual symptoms following surgery in diabetic patients with CSM.

METHODS:

A total of 505 consecutive patients with CSM (331 males, 189 females; mean age, 66.6 years; age range, 41-91 years; >1-year follow up after laminoplasty) were enrolled and divided into diabetic group (n=105) and nondiabetic group (n=400). The Japanese Orthopedic Association (JOA) scores and recovery rate (RR) of each function were compared between the groups. To quantitatively assess performance, the 10-s grip and release (G&R) test and the 10-s step test were evaluated.

RESULTS:

There was no significant difference in the mean RRs of upper extremity motor function between diabetic and nondiabetic patients (59.2% vs. 60.5%, respectively; $P=0.789$). The RR of lower extremity motor function was lower in the diabetic group than in the nondiabetic group (36.1% vs. 43.4%, respectively; $P=0.047$); the RR of upper extremity sensory function also was lower (36.8% vs. 49.6%, respectively; $P=0.006$). However, the mean RRs of sensory functions of lower extremities were 59.7% (diabetic) and 59.2% (nondiabetic) ($P=0.953$). There was no significant difference in the mean RRs of trunk sensory function between the groups (69.3% vs. 74.1%, respectively; $P=0.303$). The mean RRs of urinary bladder function were 42.1% (diabetic) and 53.7% (nondiabetic) ($P=0.035$). The preoperative mean number of the 10-s step test was lower in the diabetic group than in the nondiabetic group, and the postoperative mean number also was significantly lower in the diabetic group.

CONCLUSION:

Gait disturbance, hand numbness, and bladder dysfunction after surgery persisted more than other symptoms in the diabetic than in the nondiabetic patients.

LEVEL OF EVIDENCE:2.

13. CRANIUM/TMJ

Masseter treatment

Evaluation of masseter muscles in relation to treatment with removable bite-blocks in dolichofacial growing subjects: A prospective controlled study.

Lione R¹, Kiliaridis S², Noviello A³, Franchi L⁴, Antonarakis GS², Cozza P⁵.

Abstract

INTRODUCTION:

The aim of this prospective study was to evaluate the effects of posterior bite-blocks on masseter muscles and on facial growth in prepubertal dolichofacial subjects.

METHODS:

The treatment group comprised 21 consecutive prepubertal dolichofacial patients treated with rapid maxillary expansion followed by mandibular removable bite-blocks. Lateral cephalograms and ultrasonographic scans of the masseter muscles were made before (T1) and after (T2) treatment with bite-blocks. The treatment group was compared with a control group of 21 subjects matched for sex, age, and skeletal vertical pattern. An independent samples t test was used to compare the T1 to T2 changes in ultrasonographic scan measurements between the treatment group and the control group, and the T1 to T2 cephalometric changes in the treatment group. Regression analysis was performed to investigate associations between masseter muscle thickness and cephalometric treatment outcomes.

RESULTS:

Masseter muscle thickness showed a statistically significant decrease (-0.7 mm) in the treatment group compared with an increase (+0.6 mm) in the control group. A significant anterior rotation of the mandibular plane was observed in the treatment group as well as significant increases in overbite (1.8 mm) and total posterior facial height (1.5 mm). No significant associations were found between masseter muscle thickness and treatment outcomes apart from a tendency for overbite to increase more in subjects with thicker muscles.

CONCLUSIONS:

Treatment with removable bite-blocks produced a decrease in masseter muscle thickness and a reduction in vertical facial dimensions due to upward and forward rotation of the mandible. No significant correlation was found between the pretreatment masseter muscle thickness and the T1 to T2 cephalometric changes in the treatment group.

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Malocclusion occurs more with intellectually disabled

Spec Care Dentist. 2017 Jun 9.]

Prevalence of malocclusion in individuals with and without intellectual disability: A comparative study.

Cabrita JP¹, Bizarra MF², Graça SR².

Abstract**OBJECTIVE:**

The aim of this study was to compare the prevalence malocclusion between individuals with intellectual disability (ID) and a control group without disability (NID).

METHODS:

A total of 202 individuals (123 with ID and 79 with no impairment) were included in the study. Data were collected through oral examinations using the Angle classification of malocclusion and the dental aesthetic index (DAI).

RESULTS:

According to Angle's classification of malocclusion, it was found that 37.6% of all participants presented malocclusion. Class II malocclusion was the most common form of malocclusion in both groups, whereas class III cases were present almost exclusively in ID group (91.7%). The mean DAI score was 30.85 (\pm 13.7), being higher in the ID group (32.80) than in the control group (27.81; $p = 0.003$). A total of 45 (22.3%) participants had DAI scores of 36 and above, which indicate a handicapping malocclusion requiring mandatory orthodontic treatment. From those needing mandatory orthodontic treatment, the majority (84.4%) belonged to ID group. Mandibular irregularity (56.4%) and incisal segment crowding (45%) were the most common features of the malocclusion. Linear regression indicates that having an intellectual disability predicts severe or very severe malocclusion.

CONCLUSIONS:

In this study, the prevalence of malocclusion was found to be higher and more severe in intellectually disabled participants. The dental practitioner should understand the particular relevance of this problem especially in patients with intellectual disabilities where impaired oral functions and poor appearance may further complicate oral health and increase negative social responses.

TMD in Myotonic dystrophy

J Oral Rehabil. 2017 Jun 10.

Temporomandibular dysfunction in adult patients with myotonic dystrophy (DM1).

Mejersjö C¹, Kiliaridis S².

Abstract

Myotonic muscle dystrophy is a systemic disease with early engagement of the facial muscles.

Our aim was to study dysfunction of the temporomandibular system in patients with 'classic' dystrophia myotonica (DM1) and compare it with TMD patients and healthy controls. The study included 27 referred patients with DM1, 18 women and 9 men, aged 30-62 years, and two matched control groups: patients with temporomandibular disorders symptoms (TMD) and healthy controls, both groups were consecutive patients. The patients answered questions regarding facial pain, jaw function and dysfunction. A clinical examination of the temporomandibular system including the occlusion was performed, and the maximum bite force and finger forces were measured. Among the DM1 patients, 33% reported difficulty biting off, and 22% had difficulty chewing, avoiding foods like meat and raw vegetables, and 37% of the DM1 patients scored their pain and discomfort as moderate to fairly severe. Their main complaints were TMJ clicking and locking, difficulty opening wide, and tiredness. They had more clinical signs of dysfunction compared with the controls ($p < .001$), but no statistically significant difference to the TMD patients. The maximum bite force in DM1 patients was impaired compared to both the TMD patients and the controls ($p < .001$). Significantly more occlusal interferences were found in DM1 patients, and were associated with chewing difficulties ($p < .001$).

In conclusion, patients suffering from DM1 had an increased prevalence of TMD symptoms, reported impaired chewing function and had a decreased maximum bite force. This article is protected by copyright. All rights reserved.

Anterior repositioning splint

J Oral Rehabil. 2017 Jun 10.

Physiological effects of anterior repositioning splint on Temporomandibular joint disc displacement: A quantitative analysis.

Chen HM^{1,2,3,4}, Liu MQ^{1,3,4}, Yap AU^{5,6,7}, Fu KY^{1,3,4}.

Abstract**BACKGROUND:**

Anterior repositioning splints (ARS) are used primarily for the management of temporomandibular joint (TMJ) anterior disc displacement with reduction (ADDwR). However, the exact physiological effects of ARS are still unclear.

OBJECTIVE:

This study investigated the short and long-term effects of ARS on disc and condyle angles / positions by metric analysis.

METHODS:

22 subjects diagnosed with ADDwR were recruited. Maxillary full-coverage ARS were fabricated and MRI of TMJs were obtained before splint treatment, immediate post-insertion and 6 months after splint treatment. Disc-condyle relation was determined by disc-condyle angle measurement. Disc and condyle positions were described as X-Y coordinates with the summit of glenoid fossa as the origin of the coordinates.

RESULTS:

32 TMJs were classified as ADDwR and 12 were normal. Upon ARS insertion, all TMJs with ADDwR got normal disc-condyle relations. The condyles moved significantly forward and downward while the discs moved significantly backward and upward. MRI at 6 months after treatment (without ARS insertion) indicated that only 40.6% (13/32) of the joints were maintained in the normal disc-condyle relationship. The majority of condyles returned to their pre-treatment positions while the discs generally moved anteriorly again.

CONCLUSION:

The use of ARS resulted in forward and downward condyle movement and a concurrent backward movement of the disc resulting in ideal spatial disc-condyle relationship. The stability of this relationship, however, could not be maintained in the majority of TMJs upon ARS removal. Findings explain the good short-term clinical outcomes with ARS and their relatively lower efficacy in the long-term.

TMD and dental occlusion

J Oral Rehabil. 2017 Jun 10.

Temporomandibular disorders and dental occlusion. A systematic review of association studies: end of an era?

Manfredini D¹, Lombardo L¹, Siciliani G¹.

Abstract**AIM:**

To answer a clinical research question: "is there any association between features of dental occlusion and temporomandibular disorders (TMD)?"

METHODS:

A systematic literature review was performed. Inclusion was based on: 1. the type of study, viz., clinical studies on adults assessing the association between TMD (e.g., signs, symptoms, specific diagnoses) and features of dental occlusion by means of single or multiple variable analysis, and 2. their internal validity, viz., use of clinical assessment approaches to TMD diagnosis.

RESULTS:

The search accounted for 25 papers included in the review, 10 of which with multiple variable analysis. Quality assessment showed some possible shortcomings, mainly related with the unspecified representativeness of study populations. Seventeen (N=17) articles compared TMD patients with non-TMD individuals, whilst 8 papers compared the features of dental occlusion in individuals with TMD signs/symptoms and healthy subjects in non-patient populations. Findings are quite consistent toward a lack of clinically-relevant association between TMD and dental occlusion. Only 2 (i.e., centric relation [CR]-maximum intercuspation [MI] slide and mediotrusive interferences) of the almost forty occlusion features evaluated in the various studies were associated with TMD in the majority (e.g., at least 50%) of single variable analyses in patient populations. Only mediotrusive interferences are associated with TMD in the majority of multiple variable analyses. Such association does not imply a causal relationship and may even have opposite implications than commonly believed (i.e., interferences being the result, and not the cause, of TMD).

CONCLUSIONS:

Findings support the absence of a disease-specific association. Based on that, there seems to lack ground to further hypothesize a role for dental occlusion in the pathophysiology of TMD. Clinicians are encouraged to abandon the old gnathological paradigm in TMD practice.

Bit force

J Oral Rehabil. 2017 Jun 10. doi: 10.1111/joor.12532

Archives of Oral Biology, article in press

Does pain in the masseter and anterior temporal muscles influence maximal bite force?

Marcelo Coelho Goiato^a, Paulo Renato Junqueira Zuim^a, Amália Moreno^b, Daniela Micheline dos Santos^a, Emily Vivianne Freitas da Silva^a, Fernanda Pereira de Caxias^a, Karina Helga Leal Turcio^a

Abstract

Objective

The aim of this study was to evaluate changes in pain and muscle force, and the relationship between them, in patients with muscle pain and bruxism, prior to and after treatment.

Methods

Thirty women with bruxism and myofascial pain (Ia) were included in this study. Sleep bruxism diagnosis was made based on clinical diagnostic criteria, and awake bruxism diagnosis was made by patient questionnaires and the presence of tooth wear. The diagnosis of myofascial pain was established according to the Research Diagnostic Criteria for Temporomandibular Disorders (RDC-TMD). Dentulous or partially edentulous patients (rehabilitated with conventional fixed prostheses) were included in the study according to the inclusion and exclusion criteria. The pain treatment protocol included occlusal splints, patient education, and physiotherapy for 30 days. Bite force was measured using a dynamometer at the central incisor and the first molar regions on both sides. The exams were performed at baseline, after 7 days, and 30 days after treatment. The Wilcoxon test was used to compare patient pain level response among the periods analyzed in the study. Bite force data were submitted to two-way repeated-measures ANOVA, followed by the Tukey HSD test ($p < 0.05$). A simple regression analysis was performed to verify the relation between pain level and bite force.

Results

Results revealed that there was a statistical difference in pain level over time for both muscles and sides ($p < 0.01$). In the molar region, the bite force exhibited significantly higher values after 30 days of treatment, when compared with the baseline ($p < 0.001$). There was a correlation between pain level and bite force only for the temporal muscle in all periods analyzed ($p < 0.05$). There was no strong correlation in the response level points to support the association of pain and bite force.

16. CONCUSSIONS

Mental health and cognitive function reductions

A systematic review of potential long-term effects of sport-related concussion.

Manley G1, Gardner AJ2, Schneider KJ3, Guskiewicz KM4, Bailes J5, Cantu RC6, Castellani RJ7, Turner M8, Jordan BD9, Randolph C10, Dvořák J11, Hayden KA12, Tator CH13, McCrory P14, Iverson GL15.

Abstract

OBJECTIVE:

Systematic review of possible long-term effects of sports-related concussion in retired athletes.

DATA SOURCES:

Ten electronic databases.

STUDY SELECTION:

Original research; incidence, risk factors or causation related to long-term mental health or neurological problems; individuals who have suffered a concussion; retired athletes as the subjects and possible long-term sequelae defined as >10 years after the injury.

DATA EXTRACTION:

Study population, exposure/outcome measures, clinical data, neurological examination findings, cognitive assessment, neuroimaging findings and neuropathology results. Risk of bias and level of evidence were evaluated by two authors.

RESULTS:

Following review of 3819 studies, 47 met inclusion criteria. Some former athletes have depression and cognitive deficits later in life, and there is an association between these deficits and multiple prior concussions. Former athletes are not at increased risk for death by suicide (two studies). Former high school American football players do not appear to be at increased risk for later life neurodegenerative diseases (two studies). Some retired professional American football players may be at increased risk for diminishment in cognitive functioning or mild cognitive impairment (several studies), and neurodegenerative diseases (one study). Neuroimaging studies show modest evidence of macrostructural, microstructural, functional and neurochemical changes in some athletes.

CONCLUSION:

Multiple concussions appear to be a risk factor for cognitive impairment and mental health problems in some individuals. More research is needed to better understand the prevalence of chronic traumatic encephalopathy and other neurological conditions and diseases, and the extent to which they are related to concussions and/or repetitive neurotrauma sustained in sports.

Return to play management

Br J Sports Med 2017;**51**:A42-A43.

Safe return to play after protocol-based concussion management by a team therapist: a prospective study

Pierre Frémont^{1, 2}, Édith Castonguay², Francesco Pepe-Esposito³, Vincent Beaudoin-Hamel^{2, 3}, Catherine Desloges³, Monika Dionne³, Marie-Christine Gourde³, Benoit Hogue³, Jérémie Lanthier-Plante³, Maxime Provencher³, Mikael Quirion³

Abstract

Objective To analyse the safety of a multidisciplinary concussion management protocol where a team therapist is involved in return-to-play (RTP) decisions.

Design Prospective, pre- post-intervention cohort study over 4 seasons of competition

Setting School-based American football program (4 teams; grades 8–12)

Participants: 672 players x year (11–17 year old) for a total of 27741 athlete-exposure.

Intervention A protocol based on the Concussion In Sport Group recommendations was implemented. A computerised neuropsychological (CNP) test was used at baseline and prior to clearance for unrestricted training. For seasons 1–2, the protocol required the team physician to make all RTP decision while defined criteria allowed the team physiotherapist to make the vast majority of the RTP decisions over seasons 3–4.

Outcome measures The primary outcome was the early recurrence (ER) of concussion symptoms following RTP (defined as during the same season).

Results A total of 119 concussions were identified (55 and 64 for the first and last 2 seasons, respectively; incidence rate 4, 3: 1000 athlete-exposures). At the time of the first clearance decision, the CNP test contributed to a negative RTP decision in 67% of cases. During seasons 1–2 no ER was observed. During season 3 one injury unrelated to football resulted in one case of ER prior to clearance and, during season 4, one case of ER occurred during the second game, 11 days after clearance.

Conclusions Safe management of concussions was achieved whether the team physician or the team therapist was responsible for the application of the terms of the protocol.

Rule change

Br J Sports Med. 2017 Jun 23.

Head injuries in professional male football (soccer) over 13 years: 29% lower incidence rates after a rule change (red card).

Beaudouin F¹, Aus der Fünten K¹, Tröb T¹, Reinsberger C², Meyer T¹.

Abstract**BACKGROUND:**

Absolute numbers of head injuries in football (soccer) are considerable because of its high popularity and the large number of players. In 2006 a rule was changed to reduce head injuries. Players were given a red card (sent off) for intentional elbow-head contact.

AIMS:

To describe the head injury mechanism and examine the effect of the rule change.

METHODS:

Based on continuously recorded data from the German football magazine "kicker", a database of all head injuries in the 1st German Male Bundesliga was generated comprising seasons 2000/01-2012/13. Injury mechanisms were analysed from video recordings. Injury incidence rates (IR) and 95% confidence intervals (95% CI) as well as incidence rate ratios (IRR) to assess differences before and after the rule change were calculated.

RESULTS:

356 head injuries were recorded (IR 2.22, 95% CI 2.00 to 2.46 per 1000 match hours). Contact with another player caused most head injuries, more specifically because of head-head (34%) or elbow-head (17%) contacts. After the rule change, head injuries were reduced by 29% (IRR 0.71, 95% CI 0.57 to 0.86, p=0.002). Lacerations/abrasions declined by 42% (95% CI 0.39 to 0.85), concussions by 29% (95% CI 0.46 to 1.09), contusions by 18% (95% CI 0.43 to 1.55) and facial fractures by 16% (95% CI 0.55 to 1.28).

CONCLUSIONS:

This rule change appeared to reduce the risk of head injuries in men's professional football.

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KEYWORDS:

Soccer; concussion; epidemiology; head impact; injury patterns; traumatic brain injury

19. GLENOHUMERAL/SHOULDER**Long head of biceps repair****Tenodesis is not superior to tenotomy in the treatment of the long head of biceps tendon lesions.**

Castricini R1, Familiari F2, De Gori M2, Riccelli DA2, De Benedetto M1, Orlando N1, Galasso O3, Gasparini G2.

PURPOSE:

To compare the effectiveness of tenodesis and tenotomy in the treatment of long head of the biceps tendon (LHBT) lesions. The null hypothesis was that there is no difference in functional scores between the tenotomy and tenodesis groups.

METHODS:

A total of 69 patients with a combined supraspinatus tear and LHBT lesion aged over 40 years entered this prospective comparative study and were randomly assigned to the arthroscopic LHB tenotomy or tenodesis group. Fifty-five patients (31 in the tenotomy group and 24 in the tenodesis group) were available for the 6- and 24-month post-operative evaluations.

RESULTS:

There were no statistically significant differences in post-operative Constant and Murley score, quality of life, pain, and strengths between groups. Higher rates of Popeye's sign were noted 6 and 24 months post-operatively in the tenotomy group compared to tenodesis.

CONCLUSIONS:

Although tenotomy is affected by a higher incidence of cosmetic deformity, there is no superiority of arthroscopic tenodesis over tenotomy in the treatment of LHBT lesion as a concomitant procedure to an arthroscopic repair of the supraspinatus tendon in terms of functional outcomes, quality of life, pain, and strength measured 6 and 24 months post-operatively.

Compete pectoralis major tear

Functional outcome after pectoralis muscle repair

Merlin, Gabriel MD; Koenig, Scott MD; Gross, Jordan MD; Edgar, Cory MD, PhD

Background: The increased incidence of pectoralis major rupture in younger patients is associated with increased weightlifting in recent years, specifically the bench press. The aim of this study was to evaluate long-term outcomes in the largest series of pectoralis major repairs to date.

Methods: In a single center, retrospective observational study, 68 patients underwent pectoralis major muscle repair between August 2000 and December 2010. Chart review and a subjective patient survey of outcomes were used to retrospectively assess pain, strength, stamina, overall performance, and cosmesis before and after injury, and before and after surgery.

Results: Subjective questionnaires were sent to 68 patients and responses were obtained from 34 patients. On a scale of 0-6, 0 being the least desirable outcome and 6 being the most desirable outcome, the averages for pain, strength, stamina, overall performance, and cosmesis were 4.84, 4.87, 4.68, 4.45, 3.65 (compared with 1.89 after injury), respectively. The data demonstrated that pectoralis major muscle repair decreases pain and increases strength, stamina, overall performance, and cosmesis after surgery compared to directly after injury. Patients were able to bench press an average of 280 lbs before injury and 162 lbs after recovery from surgery. Complications included seven infections, which required return to the operating room.

Conclusions: After complete pectoralis major rupture, it is advantageous to have a pectoralis major muscle repair by an experienced surgeon to improve comfort, strength, stamina, and overall performance.

20 A. ROTATOR CUFF**Pre-operative training****Rotator cuff-related pain: Patients' understanding and experiences.**

Gillespie MA1, Mącznik A2, Wassinger CA3, Sole G4.

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

Persistent musculoskeletal pain is a multi-factorial entity, influenced by biological, genetic and psychosocial factors. Psychosocial factors, such as individuals' beliefs and experiences, need to be considered in the management of such pain. While extensive research has explored beliefs of individuals with spinal pain, less is known about individuals' beliefs regarding shoulder pain.

OBJECTIVES:

To explore beliefs about the cause of pain in individuals with persistent rotator cuff-related pain, as well as the experiences of the effect of pain on their daily lives.

DESIGN:

A mixed methods design, using semi-structured interviews and validated outcome questionnaires.

METHOD:

Five men and five women, aged 47-68 years, with shoulder pain for at least three months were recruited. Individual semi-structured interviews were audio-recorded, transcribed verbatim and analysed using the general inductive approach.

RESULTS/FINDINGS:

Four key themes emerged. The cause of pain, 'Understanding the pain', was described in terms of anatomical factors within the context of the participants' lives. The pain impacted all areas of life, creating another theme, 'It affects everything'. Participants responded to their pain by adopting certain, 'Pain-associated behaviours' and sought information for diagnosis, general management and exercise prescription, 'Emotional responses and the future'.

CONCLUSIONS:

The participants with rotator cuff-related pain believed the cause of their pain to be local to the shoulder region. However, they also described various stressors in their work-, sports- and family-related lives. Rehabilitation may need to include educating the individual, expanding their understanding regarding pain mechanisms and appropriate interventions, based on individual goal-setting.

Junction positioning

Influence of Preoperative Musculotendinous Junction Position on Rotator Cuff Healing After Double-Row Repair

Richard Robins, M.D., Robert Tashjian, M.D., Gregory Erickson, M.D. Yue Zhang, Ph.D., Robert Burks, M.D., Patrick Greis, M.D.

Introduction The purpose of this study was to determine the effect of the preoperative position of the musculotendinous junction (MTJ) on rotator cuff repair healing after double-row repairs.

Methods Preoperative and postoperative MRIs were reviewed of 42 patients undergoing arthroscopic double-row rotator cuff repair. Preoperative MRIs were evaluated for anteroposterior tear size, tendon retraction, tendon length, muscle quality, and MTJ position with respect to the glenoid. The position of the MTJ was referenced off the glenoid face as either lateral or medial. Postoperative MRIs were evaluated for healing, tendon length, and MTJ position.

Results 36 of 42 tears (86%) healed, with 27 of 31 small/medium tears (87%) and 9 of 11 large/massive tears (82%) healing. Repairs that failed to heal did have a significantly more medialized preoperative MTJ position (1.3 mm vs. 9.9 mm lateral to the glenoid, $p = 0.033$). 94% of tears that had a preoperative MTJ lateral to the face of the glenoid healed, while only 56% of tears that had a preoperative MTJ medial to the face of the glenoid healed ($p=0.0135$). Results from univariate regression analysis indicated that a preoperative MTJ medial to the glenoid face was correlated with worse tendon healing ($p=0.047$). The measured tendon length increased an average of 14.4 mm in patients who healed compared to shortening 6.4 mm in patients that did not heal ($p<0.001$). The MTJ lateralized an average of 6.1 mm in patients who healed compared to medializing 1.9 mm in patients who did not heal ($p=0.026$).

Conclusion Preoperative MTJ position is predictive of postoperative tendon healing after double-row rotator cuff repair. The glenoid face can be used as a marker to reference MTJ position and predict postoperative healing rates. If the tendon heals, healing typically occurs with some tendon lengthening and some MTJ lateralization

21. ADHESIVE CAPSULITIS

Manipulation under anaesthesia

Recurrence of frozen shoulder after manipulation under anaesthetic (MUA): the results of repeating the MUA.

Woods DA1, Loganathan K2.

AIMS:

Manipulation under anaesthetic (MUA) is a recognised form of treatment for patients with a frozen shoulder. However, not all patients benefit. Some have persistent or recurrent symptoms. There are no clear recommendations in the literature on the optimal management of recurrent frozen shoulder after a MUA. We aimed to address this issue in this study.

PATIENTS AND METHODS:

We analysed a prospectively collected, single-surgeon, consecutive series of patients who underwent MUA for frozen shoulder between January 1999 and December 2015. The Oxford Shoulder Scores (OSS) and range of movement were the outcome measures.

RESULTS:

A total of 730 patients (792 shoulders) underwent MUA during the study period. A further MUA was undertaken in 141 shoulders (17.8%), for which we had complete data for 126. The mean improvement in OSS for all patients undergoing MUA was 16 (26 to 42), and the mean post-operative OSS in those requiring a further MUA was 14 (28 to 42; *t*-test, no difference between mean improvements, $p = 0.57$). Improvement was seen after a further MUA, regardless both of the outcome of the initial MUA, and of the time of recurrence. Patients with type-1 diabetes mellitus were at a 38% increased risk of requiring a further MUA, compared with the 18% increased risk of the group as a whole ($p < 0.0001$).

CONCLUSION:

Patients with a poor outcome or recurrent symptoms of a frozen shoulder after a MUA should be offered a further MUA with the expectation of a good outcome and a low complication rate.

22 B. INSTABILITY**Bone loss****Bipolar Bone Loss in Patients With Anterior Shoulder Dislocation: A Comparison of Adolescents Versus Adult Patients**

Brian C. Lau, M.D., Devin Conway, B.S., Patrick F. Curran, M.D., Brian T. Feeley, M.D., Nirav K. Pandya, M.D.

DOI: <http://dx.doi.org/10.1016/j.arthro.2017.04.004>

Article Info**Purpose**

To compare bipolar bone loss by evaluating the degree of glenoid bone loss, Hill-Sachs lesion size, and glenoid track in adolescents and adults with shoulder dislocations.

Methods

We performed a retrospective review between 2012 and 2016 of surgical and nonsurgical patients with a history of anterior shoulder dislocations (primary or recurrent) who underwent magnetic resonance imaging of the affected shoulder. The exclusion criteria included multidirectional instability, prior surgery, and posterior dislocation. Patients were grouped into 2 groups: adolescents (aged 10-19 years) and adults (aged ≥ 20 years). The groups were compared regarding measures of glenoid bone loss (best-fit circle technique) and Hill-Sachs lesion size (medial margin of rotator cuff footprint to medial margin of Hill-Sachs lesion). If the medial margin of a Hill-Sachs lesion was within the glenoid track, it was defined as on track; if it was more medial than the glenoid track, it was defined as off track.

Results

We identified 45 adolescents (mean age, 16.1 years) and 30 adults (mean age, 28.9 years) with anterior shoulder dislocations. There was no significant difference in percentage of bone loss between adolescents (mean, 8.4%) and adults (mean, 9.9%; $P = .23$). There was no significant difference in Hill-Sachs lesion size between adolescents (mean, 12.7 mm) and adults (mean, 9.9 mm; $P = .12$). There were 12 patients with off-track lesions. Off-track lesions were present in 11 of 45 adolescents (24.4%) and 1 of 30 adults (3.3%). Adolescents had an increased risk of having an off-track lesion (odds ratio, 9.38; 95% confidence interval, 1.14-77.1). A subgroup analysis identified multiple dislocations as an independent risk factor for an off-track lesion (odds ratio, 4.15; 95% confidence interval, 0.85-20.23).

Conclusions

This study shows that adolescence and a history of multiple dislocations are independent risk factors for a greater likelihood of glenoid off-track lesions. The findings support the use of bipolar assessment of shoulder dislocators, especially in adolescents and multiple dislocators.

Level of Evidence Level III, retrospective comparative study.

25. WRIST AND HAND**Non-surgical therapies for OA****Systematic review of non-surgical therapies for osteoarthritis of the hand: an update.**

Lue S1, Koppikar S1, Shaikh K1, Mahendira D2, Towheed TE3.

Author information**Abstract****OBJECTIVE:**

To update our earlier systematic reviews which evaluated all published randomized controlled trials (RCTs) evaluating pharmacological and non-pharmacological therapies in patients with hand osteoarthritis (OA). Surgical therapies were not evaluated.

DESIGN:

RCTs published between March 2008 and December 2015 were added to the previous systematic reviews.

RESULTS:

A total of 95 RCTs evaluating various pharmacological and non-pharmacological therapies in hand OA were analyzed in this update. Generally, the methodological quality of these RCTs has improved since the last update, with more studies describing their methods for randomization, blinding, and allocation concealment. However, RCTs continue to be weakened by a lack of consistent case definition and a lack of standardized outcome assessments specific to hand OA. The number and location of evaluated hand joints continues to be underreported, and only 25% of RCTs adequately described the method used to ensure allocation concealment. These remain major weaknesses of published RCTs. A meta-analysis could not be performed because of marked study heterogeneity, insufficient statistical data available in the published RCTs, and a small number of identical comparators.

CONCLUSION:

Hand OA is a complex area in which to study the efficacy of therapies. There has been an improvement in the overall design and conduct of RCTs, however, additional large RCTs with a more robust methodological approach specific to hand OA are needed in order to make clinically relevant conclusions about the efficacy of the diverse treatment options available.

27. HIP**Dysplasia****Successful Pavlik Harness Treatment for Developmental Dysplasia of the Hip and Normal X-Ray at the Age of 2 Years: Is a Longer Follow-up Necessary?**

Allington NJ1.

BACKGROUND:

Management of developmental dysplasia of the hip (DDH) with a Pavlik harness is a well-known treatment. Follow-up until skeletal maturity is recommended as long-term studies mention late sequelae. The purpose of this study was to determine whether such a follow-up is necessary in patients treated successfully under a strict protocol.

METHODS:

A retrospective review of a consecutive series of normal infants treated for DDH between January 1995 and July 2004 was undertaken. Only normal infants with frankly pathologic hips treated successfully with a Pavlik harness were included, and with a normal anteroposterior (AP) pelvis x-ray at the age of 2 years. All infants with any type of neurological disease, syndrome, other form of treatment for DDH, and failure of the Pavlik harness were excluded. At the last follow-up, a clinical examination and a standing AP pelvis x-ray were performed.

RESULTS:

A total of 109 hips in 83 children were available for review. The mean follow-up was of 10 years and 2 months. All 109 hips had a normal clinical examination and a normal AP pelvis x-ray: a mean center-edge angle (CEA) of 29.5 degrees, SD±4.1 degrees, a mean acetabular index (AI) of 1457±3.74 degrees, a mean Sharp's angle of 41.92±3.42 degrees, a Serridge-Severin score of IA, a normal teardrop figure, no signs of avascular necrosis, and Moses circles <2.

CONCLUSION:

This study strongly suggests that in a selected group of patients treated for DDH with a Pavlik harness, under a strict protocol, and a normal x-ray at 2 years of age, a long-term follow-up is not necessary.

Hip fx and UT infection

Geriatr Gerontol Int. 2017 Jun 16.

Urinary tract infection in patients with hip fracture: An underestimated event?

Bliemel C¹, Buecking B¹, Hack J¹, Aigner R¹, Eschbach DA¹, Ruchholtz S¹, Oberkircher L¹.

AIM:

Urinary tract infections (UTI) represent a common perioperative complication among elderly patients with hip fracture. To determine the impact of UTI on the perioperative course of elderly patients with hip fractures, a prospective study was carried out.

METHODS:

A total of 402 surgically-treated geriatric hip fracture patients were consecutively enrolled at a level 1 trauma center. On admission, all patients received an indwelling urinary catheter. Clinically symptomatic patients were screened more closely for UTI. Patients diagnosed with UTI were compared with asymptomatic patients. Outcomes in both patient groups were measured using in-hospital mortality, overall length of hospital stay, wound infection, functional results and mobility at discharge. Multivariate regression analysis was carried out to control for influencing factors.

RESULTS:

A total of 97 patients (24%) sustained a UTI during in-hospital treatment. UTI were independently associated with inferior functional outcomes as assessed by the Barthel Index ($\beta = -0.091$; $P = 0.031$), Timed Up and Go test ($\beta = 0.364$; $P = 0.001$) and Tinetti test ($\beta = -0.169$; $P = 0.001$) at discharge. Additionally, length of hospital stay was significantly longer for patients with a UTI diagnosis ($\beta = 0.123$; $P = 0.029$) after controlling for all other variables. No differences were observed in the rate of wound infection (odds ratio 1.185; $P = 0.898$) or in-hospital mortality ($P < 0.997$).

CONCLUSIONS:

Patients with UTI seem to be at risk of inferior functional outcomes. In addition to an early detection of symptomatic UTI and a targeted antibiotic therapy, perioperative care should focus on preserving functional ability to protect these patients from further loss of independence and prolonged clinical courses.

28. REPLACEMENTS**Predictors of falls**

Arch Orthop Trauma Surg. 2017 Jun 8. doi: 10.1007/s00402-017-2727-6.

Pre-operative predictors of post-operative falls in people undergoing total hip and knee replacement surgery: a prospective study.

Levinger P^{1,2}, Wee E³, Margelis S³, Menz HB³, Bartlett JR⁴, Bergman NR⁴, McMahon S⁵, Hill KD⁶.

Author information

INTRODUCTION:

Pain and disability often persist following hip (THR) and knee replacement (TKR) surgery predisposing patients to increased risk of falling. This study identified pre-operative predictors for post-operative falls in TKR and THR patients, and the incidence and circumstances of falls in the 12 months post-surgery.

MATERIALS AND METHODS:

A survey was undertaken of patients before THR and TKR, and was repeated 12 months post-operation. The survey included (1) medical history and medications usage, (2) pain and function, (3) health-related and physical activity and (4) fear of falls and history of falls questionnaires. Patients were classified as 'fallers' (≥ 1 fall) or 'non-fallers' based on prospectively documented falls in the 12 months post-surgery. Binary logistic regression was conducted to identify independent pre-operative predictors of incident falls status.

RESULTS:

Eighty-two of the 243 participants (33.7%) reported ≥ 1 fall in the 12 months post-operatively [60 (34.1%) patients following TKR and 22 (32.8%) following THR]. The logistic regression model was statistically significant, $\chi^2 = 24.731$, $p < 0.001$, the model explaining 22% of the variance in falls, and correctly classifying 73.7% of cases as fallers or non-fallers. Reduced SF-36v2 general health sub-scale, increased planned physical activity and previous falls in the preceding year were predictors of falls. Those reporting ≥ 1 fall pre-operatively were three times more likely to fall post-operatively.

CONCLUSION:

People awaiting hip or knee joint replacement surgery might present with complex conditions that predispose them to greater risk of falling post-operation. Review of general health and history of falling is recommended pre-operatively to identify patients at risk.

KEYWORDS: Falls; Hip replacement; Knee replacement; Osteoarthritis PMID: 28597247

DOI: 10.1007/s00402-017-2727-6\

PT expectation influence results

Do Patient Expectations Influence Patient Reported Outcomes and Satisfaction in Total Hip Arthroplasty? A Prospective, Multicenter Study

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DOI: <http://dx.doi.org/10.1016/j.arth.2017.06.017>

Background

The relationship between patient expectations and patient reported outcomes (PROs) in total hip arthroplasty (THA) patients is controversial. The purpose of this study was to examine the impact of preoperative patient expectations on postoperative PROs and patient satisfaction.

Methods

This was a prospective multicenter observational cohort study including patients from four institutions who underwent primary THA. Preoperatively, patients completed Hospital for Special Surgery Hip Replacement Expectations Survey (expectations), SF-12, UCLA activity score, and Hip Disability and Osteoarthritis Score (HOOS). Postoperatively at six months and one year, patients completed the Hospital for Special Surgery Hip Replacement Fulfillment of Expectations Survey (fulfillment of expectations), a satisfaction survey, and the same PROs as preoperatively. Step-wise multivariate regression models were created to determine the relationships between preoperative factors and expectations, and expectations and PROs, fulfillment of expectations, and satisfaction.

Results

207 patients were enrolled. Follow-up rate was 91% at 6 months and 92% at 1 year. Being employed and lower baseline HOOS predicted higher expectations (employment status: $B=-7.5$, $p=0.002$; HOOS: $B=-0.27$, $p=0.002$). Higher preoperative expectations predicted greater improvements in UCLA activity, SF-12 PCS, and HOOS at 6 months (UCLA activity: $B=0.03$, $p=0.001$; SF-12 PCS: $B=0.15$, $p=0.001$; HOOS $B=0.20$; $p=0.008$) and UCLA activity at 1 year ($B=0.02$, $p=0.004$). Furthermore, higher expectations predicted higher postoperative satisfaction and fulfillment of expectations at 6 months (satisfaction: $B=0.21$, $p<0.001$; HSS-HRFES: $B=0.30$, $p<0.001$) and higher fulfillment of expectations at 1 year ($B=0.17$, $p=0.006$).

Conclusion

In patients undergoing THA, being employed and worse preoperative hip function are predictive of higher preoperative expectations of surgery. Higher expectations predict greater improvement in PROs, greater patient satisfaction, and the fulfillment of expectations. These findings can be used to guide patient counseling and shared decision making preoperatively.

29. OA

Dosage of exercise

The importance of dose in land-based supervised exercise for people with hip osteoarthritis. A systematic review and meta-analysis.

Moseng T1, Dagfinrud H2, Smedslund G3, Østerås N4.

Abstract**PURPOSE:**

To compare effects of land-based exercise programmes with high versus low or uncertain compliance with dose recommendations among people with hip osteoarthritis (OA).

DESIGN:

A systematic review with meta-analyses of supervised exercise programmes in people with symptomatic hip OA was conducted. Dose of the exercise interventions was evaluated according to the American College of Sports Medicine's (ACSM) recommendations for developing and maintaining cardiorespiratory fitness, muscular strength and flexibility in healthy adults. Compliance ratios with the recommendations were calculated. Standardized Mean Differences (SMD) were calculated in meta-analyses for the outcomes pain and self-reported physical function. Outcome effects were compared between the sub-groups of studies with interventions with "high" versus "uncertain" compliance with the ACSM recommendations.

RESULTS:

Twelve studies including 1202 participants were included. Seven were categorized with "high" and five with "uncertain" compliance with the ACSM recommendations. Ten studies had an overall low risk of bias. Comparing exercise with no exercise, the pooled SMD for pain was -0.42 (95% CI -0.58, -0.26) in the high compliance group, favouring exercise. In the uncertain compliance group the pooled SMD was 0.04 (95% CI -0.24, 0.31). For physical function the SMD was -0.41 (95% CI -0.58, -0.24) in the high compliance group and -0.23 (95% CI -0.52, 0.06) in the uncertain compliance group.

CONCLUSIONS:

The results show that land-based, supervised exercise interventions with high compliance to the ACSM recommendations result in significantly larger improvements in pain and non-significantly larger improvement in self-reported physical function compared with land-based, supervised exercise interventions with uncertain compliance.

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Sedentary time is a problem**The Association Between Sedentary Time And Quality Of Life From The Osteoarthritis Initiative: Who Might Benefit Most From Treatment?**

Daniel Pinto, PT, PhD , Jing Song, MS, Jungwha Lee, PhD, MPH, Rowland W. Chang, MD, MPH, Pamela A. Semanik, PhD, CNP, Linda S. Ehrlich-Jones, PhD, RN, Christine A. Pellegrini, PhD, Dorothy D. Dunlop, PhD

DOI: <http://dx.doi.org/10.1016/j.apmr.2017.06.004>

Abstract**Objective**

To investigate the relationship between sedentary behavior and quality adjusted life years (QALY) among participants in the Osteoarthritis Initiative (OAI).

Design

1794 participants from a prospective multicenter, longitudinal cohort were classified into quantile groups based on average daily sedentary time (most sedentary Q1 ≥ 11.6 , $10.7 \leq Q2 < 11.6$, $9.7 \leq Q3 < 10.7$, least sedentary Q4 < 9.7 average daily sedentary hours).

Interventions

None.

Main outcome measures

Individual QALY was estimated over two years from the area under the curve of health-related utility scores derived from the 12-item Short-Form Health Survey versus time. The relationship between baseline sedentary behavior and median two-year QALYs was estimated using quantile regression adjusted for socioeconomic and BMI.

Results

Lower QALYs over two years were more frequently found among the most sedentary (Q1, median 1.59), and QALYs increased as time spent in baseline sedentary behavior decreased (median QALY for Q2: 1.64, Q3: 1.65, Q4: 1.65). The relationship of sedentary time and median QALY change was only significant for the most sedentary Q1 group where an additional hour of sedentary behavior significantly reduced QALY by -0.073 (95% CI: -0.121, -0.025).

Conclusions

Our findings suggest individuals with the most extreme sedentary profiles may be vulnerable to additional losses of quality of life if they become more sedentary. Targeting these individuals to decrease sedentary behavior has the potential to be cost-effective.

30 A. IMPINGEMENT**CPM helped****Continuous Passive Motion after Hip Arthroscopy for Femoroacetabular Impingement: A Prospective, Comparative Trial**

Daniel Cunningham, B.S., Brian Lewis, M.D., Carolyn Hutyra, B.S., Richard Mather, M.D., Steven Olson, M.D.

Introduction Though continuous passive motion (CPM) devices are often used in post-operative rehabilitation protocols after surgical treatment of symptomatic femoroacetabular impingement (FAI), no prospective, controlled data currently exists about whether or not these devices provide measureable benefit to patients after hip arthroscopy. The aim of this prospective, comparative study is to investigate whether or not CPM devices objectively benefit patients in the early post-operative period.

Methods In this IRB-approved study at a tertiary care academic medical center, surgical and post-operative medications and rehabilitation protocols between 2 surgeons were standardized. One surgeon used CPM in his rehabilitation protocol while the other surgeon did not. Consented subjects answered questions regarding pre-operative pain, function, and psychological status included the International Hip Outcome Tool (iHOT-12), visual analog scale (VAS) pain, pain medication usage, Patient Health Questionnaire (PHQ-8), and Pain Catastrophizing Scale (PCS). At the two-week and six-week post-operative visits, patients recorded average pain felt over the preceding 2 weeks. At the 6-week visit, patients also completed the iHOT-12. Pre-operative predictors with univariate p-values less than 0.15 were incorporated into multivariable linear regression models.

Results In a complete case analysis of 40 and 29 patients having reached the 2-week and 6-week post-operative marks, respectively, patients prescribed CPM devices had statistically significantly greater pain reduction at 6 weeks (normalized pain reduction of 76% vs. 33%, $p=0.0048$) and greater improvement in hip function score at 6 weeks (normalized iHOT-12 score increase of 143% vs. 50%, $p=0.0088$). No factors achieved significance at 2 weeks post-operative.

Conclusion This is the first study to investigate the impact of CPM inclusion in short-term post-operative rehabilitation outcomes after hip arthroscopy for symptomatic FAI. Including CPM in post-operative rehabilitation was associated with significantly improved pain and function by 6 weeks post-operative.

31. KNEE**Dislocations****Clinical and Functional Results of 119 Patients With Knee Dislocations**

Scarcella, Nicholas R. BS; Weinberg, Douglas S. MD; Bowen, Stephen BS; Vallier, Heather A. MD

Journal of Orthopaedic Trauma: July 2017 - Volume 31 - Issue 7 - p 380–386

doi: 10.1097/BOT.0000000000000839

Original Article

Objectives: To describe clinical results and functional outcomes of knee dislocations treated with a consistent strategy within our institution.

Design: Retrospective case series.

Setting: Level 1 trauma center.

Patients: One hundred nineteen patients were treated at one institution between 2000 and 2014 for knee dislocation.

Main Outcome Measurements: Knee range of motion, functional instability, and complications were recorded. Musculoskeletal Function Assessment (MFA) and Lysholm scores were obtained after minimum of 1 year.

Results: Sixty-three early complications were noted in 36 patients (32%), with an overall amputation rate of 9.2% (8 early and 3 late amputations). Of the patients who retained their limb, 4.5% reported instability. Open knee dislocations were associated with amputation (26% vs. 1.3%, $P < 0.001$). Popliteal arterial injuries were associated with more amputation (31% vs. 3.2%, $P = 0 < 0.001$), infection (37% vs. 8%, $P = 0.002$), and deep venous thrombosis (32% vs. 8.8%, $P = 0.014$). Patients with wound infection were more likely to develop heterotopic ossification (36% vs. 9.4%, $P = 0.017$) and less knee motion (77.5 vs. 117 degrees $P = 0.049$). Knee motion improved over time for all patients with a mean arc of 86 degrees at 3 months, 109 degrees at 6 months, and 115 degrees at 12 months. An Injury Severity Score of ≥ 20 was associated with less knee motion (97 vs. 121 degrees $P = 0.029$). Mean Lysholm score was 86.7, and mean MFA score was 35.7 after mean follow-up of 90 months and 82 months, respectively.

Conclusions: Few patients (4.5%) experienced functional instability. However, early complications occurred frequently (32%) as expected, particularly in patients with open injuries and/or arterial injury. Limitations in knee motion were associated with high Injury Severity Score, infection, and heterotopic ossification. Mean knee scores were good, consistent with reasonable knee function, although MFA scores suggest a lower level of generalized function.

Level of Evidence: Prognostic Level IV. See Instructions for Authors for a complete description of levels of evidence.

34. PATELLA

Patellar taping not shown to be helpful

Effects of patellar taping on knee pain, functional disability, and patellar alignments in patients with patellofemoral pain syndrome: A randomized clinical trial

Journal of Bodywork & Movement Therapies

Ghoubanpour A, et al.

Abstract

Question

What are the effects of patellar taping on pain, functional disability and patellar alignments in Patellofemoral Pain Syndrome (PFPS)?

Design

Double-blind randomized clinical trial.

Participants

Thirty PFPS Patients were randomly divided into two groups, intervention and control. Intervention: Patients in control group received only the routine physiotherapy. In addition to routine physiotherapy, patellar taping was used in the intervention group. Each patient was treated for 12 sessions over a period of 4 weeks.

Outcome measures

The KOOS and VAS questionnaires were used to assess the quality of life (QOL) and pain intensity, respectively. Three components of patellar alignment including Patellofemoral Congruence Angle (PFCA), Lateral Patellofemoral Angle (LPFA) and Lateral Patellar Displacement (LPD) were evaluated using the skyline radiography method.

Results

The results indicated that there was no significant difference between the control and intervention groups for LPD ($P=0.586$), PFCA ($P=0.704$) and LPFA ($P=0.176$) variables. No significant difference was found between the two groups in all items of the KOOS questionnaire. The knee pain intensity was significantly reduced in both the intervention ($P<0.001$) and control ($P=0.001$) groups at the end of the 4th week.

Conclusion

The results of the present study indicated that patellar taping compared to routine physiotherapy treatments had no beneficial effects on pain reduction, QOL improvement and correction of patellar alignment in PPS patients.

35. KNEE/TOTAL**Electrical Stim helps recovery****Comparison of the effect of sensory-level and conventional motor-level neuromuscular electrical stimulation on quadriceps strength after total knee arthroplasty: a prospective randomized single-blind trial.**

Yoshida Y1, Ikuno K2, Shomoto K3.

OBJECTIVE:

To compare sensory-level neuromuscular electrical stimulation (sNMES) and conventional motor-level neuromuscular electrical stimulation (mNMES) in patients after total knee arthroplasty (TKA).

DESIGN:

A prospective randomized single-blind trial.

SETTING:

A hospital total arthroplasty center: inpatients.

PARTICIPANTS:

Patients with osteoarthritis (N=66, 85% women, mean age 73.5±6.3y) were randomized to receive either sNMES applied to the quadriceps (the sNMES group), mNMES (the mNMES group), or no stimulation (the Control group) in addition to a standard rehabilitation program.

INTERVENTIONS:

Each type of NMES was applied in 45 minute sessions, 5days/week, for 2 weeks.

MAIN OUTCOME MEASURES:

Data for the quadriceps maximum voluntary isometric contraction (MVIC), the leg skeletal muscle mass determined using multiple frequency bioelectrical impedance analysis, the Timed Up and Go test, the 2-Minute Walk Test (2MWT), the visual analogue scale, and the range-of-motion of the knee were measured preoperative and at 2 and 4 weeks after TKA.

RESULTS:

The mNMES (P = 0.001) and sNMES groups (P = 0.028) achieved better MVIC results than the Control group. The mNMES (P = 0.003) and sNMES groups (P = 0.046) achieved better 2MWT results than the Control group. Some patients in the mNMES group dropped out of the experiment due to discomfort.

CONCLUSION:

The mNMES significantly improved the muscle strength and functional performance more than the standard program alone. The mNMES was uncomfortable for some patients. The sNMES was comfortable and improved muscle strength and functional performance more than the standard program alone.

Factors for post-operative stiffness**Stiffness after primary total knee arthroplasty: a radiographic analysis with a matched-control population**

Moya-Angeler, Joaquin MD, PhD; Bas, Marcel A. MD; Cooper, H. John MD; Hepinstall, Matthew S. MD; Rodriguez, Jose A. MD; Scuderi, Giles R. MD

Background: The purposes of this study were (1) to evaluate standardized radiographic parameters in a population of patients who developed stiffness after primary total knee arthroplasty (TKA), and (2) to compare those to a matched control population.

Methods: A retrospective review was performed to identify patients who required revision for stiffness after primary TKA. Patients with history of TKA revision or infection, as well as, those treated with isolated polyethylene exchange were excluded. Study patients were matched 1:1 with controls based on age, sex, body mass index (BMI). Radiographic measurements were performed by two blinded independent observers.

Results: A total of 44 patients met the inclusion criteria. Thirty-one (70%) were females. Mean BMI was 33 kg/m² (19-58). Univariate odds ratios showed significance for patella baja (5.776; 0.025), increased anterior condylar offset ratio (ACO) (15.265; 0.000), increased anterior implant-cortex gap (5.067; 0.038), and increased percentage of patellar displacement (PPD) (6.476; 0.016). Multivariate regression analysis showed significance for ACO (18.307; 0.001) and PPD (9.338; 0.024). No significance was observed with respect to component alignment in the coronal or sagittal planes, posterior condylar offset ratio, patellar tilt, presence of heterotopic ossification, or posterior osteophyte formation. Intraclass correlation coefficients (ICCs) ranged from good to excellent (>0.8) for all measurements performed.

Conclusions: The restoration of the joint line and avoiding overstuffing the patellofemoral compartment are fundamental in preventing the development of postoperative stiffness. Poor mechanics of the patellofemoral compartment are significantly associated with the development of stiffness after primary TKA.

37. OSTEOARTHRITIS/KNEE

Stem cells

Br J Sports Med. 2017 Mar 3.

Stem cell injections in knee osteoarthritis: a systematic review of the literature.

Pas HI^{1,2,3}, Winters M⁴, Haisma HJ⁵, Koenis MJ⁶, Tol JL^{7,3,8}, Moen MH^{7,9,10}.

Abstract

OBJECTIVE:

Stem cell injection for knee osteoarthritis (KOA) is an emerging new therapy, and we aimed to review its evidence of efficacy.

DESIGN:

Systematic review.

ELIGIBILITY CRITERIA:

Criteria for eligibility were randomised controlled trials (RCTs) and non-RCT on the efficacy of stem cell injections in KOA. All references were checked for missed articles.

DATA SOURCES:

MEDLINE, EMBASE, CINAHL, Web of Science, Cochrane Library, PEDro and SPORTDiscus were searched. A grey literature search was performed. No restrictions were imposed to our search strategy.

RISK OF BIAS AND DATA SYNTHESIS:

Risk of bias was assessed using the Cochrane risk of bias tool. Descriptive synthesis was performed using the levels of evidence according to the Oxford Levels of Evidence.

RESULTS:

Five RCTs and one non-RCT were found. Bone-marrow-derived stem cells, adipose-derived mesenchymal stem cells and peripheral blood stem cells were used. All trials were at high risk of bias, resulting in level-3 evidence. All five RCTs reported superior efficacy for patient-reported outcomes (Visual Analogue Scale, Western Ontario and McMaster Universities Arthritis Index, Tegner, Lysolm, International Knee Documentation Committee, Knee Injury and Osteoarthritis Outcome Score, Lequesne) compared with controls at final follow-up (range 24-48 months). Superior radiological outcomes were found favouring stem cell injection. Superior histological outcomes and/or improved arthroscopically scored healing rates were reported in two trials. No serious adverse events were reported.

CONCLUSION:

Six trials with high risk of bias showed level-3 or level-4 evidence in favour of stem cell injections in KOA. In the absence of high-level evidence, we do not recommend stem cell therapy for KOA.

KEYWORDS Cellular; Knee; Osteoarthritis

Ethnicity and pain experience

J Pain. 2017 Jun 12. pii: S1526-5900(17)30613-2. doi: 10.1016/j.jpain.2017.05.007

Depression and Pain in Asian Americans and Whites with Knee Osteoarthritis.

Ahn H¹, Weaver M², Lyon D², Choi E³, Fillingim RB⁴.

Author information

Abstract

Few studies have examined the underlying psychosocial mechanisms of pain in Asian Americans.

Using the biopsychosocial model, we sought to determine whether variations in depression contribute to racial group differences in symptomatic knee osteoarthritis pain between Asian Americans and non-Hispanic whites. The sample consisted of 100 participants, including 50 Asian Americans (28 Korean Americans, 9 Chinese Americans, 7 Japanese Americans, 5 Filipino Americans, and 1 Indian American) and 50 age- and sex-matched non-Hispanic whites with symptomatic knee osteoarthritis pain. The Centers for Epidemiologic Studies Depression Scale was used to assess symptoms of depression, and the Western Ontario and McMaster Universities Osteoarthritis Index and the Graded Chronic Pain Scale were used to measure clinical pain. In addition, quantitative sensory testing was used to measure experimental sensitivity to heat- and mechanically-induced pain.

The results indicated that higher levels of depression in Asian Americans may contribute to greater clinical pain and experimental pain sensitivity. These findings add to the growing literature regarding ethnic and racial differences in pain and its associated psychological conditions, and additional research is warranted to strengthen these findings.

PERSPECTIVE:

This article demonstrates the contribution of depression to clinical pain and experimental pain sensitivity in Asian Americans with knee osteoarthritis. Our results suggest that Asian Americans have higher levels of depressive symptoms and that depression plays a relevant role in greater clinical pain and experimental pain sensitivity.

Arch Phys Med Rehabil. 2017 Jun 23.

Dance aquatic helped**Effects of a dance-based aquatic exercise program in obese postmenopausal women with knee osteoarthritis: a randomized controlled trial.**

Casilda-López J¹, Valenza MC, Cabrera-Martos I, Díaz-Pelegrina A, Moreno-Ramírez MP, Valenza-Demet G.

OBJECTIVE:

To evaluate the effects of a dance-based aquatic exercise program on functionality, cardiorespiratory capacity, postexercise heart rate, and fatigue in obese postmenopausal women with knee osteoarthritis.

METHODS:

A randomized controlled trial was performed. In all, 34 obese women diagnosed with knee osteoarthritis participated. Women were randomly allocated to an experimental group (n=17) or a control group (n=17). Participants in the experimental group were included in an 8-week dance-based aquatic exercise program conducted in community swimming pools. Those in the control group underwent a global aquatic exercise program. The primary outcome measure was functionality assessed with the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). Secondary outcomes were cardiorespiratory capacity evaluated with the 6-minute walk test, and postexercise heart rate and fatigue assessed using a visual analog scale. Variables were measured at baseline, after the intervention, and at 3-month follow-up.

RESULTS:

A between-group analysis showed significant postintervention differences in functionality (aggregate postintervention WOMAC score of 37.30 ± 16.61 vs 41.83 ± 13.69 ; $P=0.048$) in favor of the experimental group. In addition, significant between-group differences were found after the 8 weeks in cardiorespiratory capacity, postexercise heart rate, and fatigue. Follow-up continued to show significant differences between groups in function (aggregate WOMAC score of 38.60 ± 13.61 vs 42.60 ± 9.05 ; $P=0.038$), postexercise heart rate, and fatigue.

CONCLUSIONS:

An 8-week dance-based exercise program significantly improved function and cardiorespiratory capacity, and decreased postexercise heart rate and fatigue. Most of these improvements were maintained at 3-month follow-up in obese postmenopausal women.

PMID: 28141662

DOI:10.1097/GME.0000000000000841

Changes in gait**Gait adaptations with aging in healthy participants and people with knee-joint osteoarthritis**

Lynsey D. Duffell , Stevan J. Jordan, Justin P. Cobb, Alison H. McGregor

DOI: <http://dx.doi.org/10.1016/j.gaitpost.2017.06.015>

Highlights

- We studied the relation between age and gait parameters in people with and without OA.
- Altered gait parameters appear in older subjects with OA only.
- We propose these are due to joint morphological changes, rather than the cause of OA.

Abstract

The relationship between age and gait characteristics in people with and without medial compartment osteoarthritis (OA) remains unclear.

We aimed to characterize this relationship and to relate biomechanical and structural parameters in a subset of OA patients. Twenty five participants with diagnosed unilateral medial knee OA and 84 healthy participants, with no known knee pathology were recruited. 3D motion capture was used to analyse sagittal and coronal plane gait parameters while participants walked at a comfortable speed. Participants were categorized according to age (18-30, 31-59 and 60+ years), and those with and without OA were compared between and within age groups. In a subset of OA patients, clinically available Computed Tomography images were used to assess joint structure.

Differences in coronal plane kinematics at the hip and knee were noted in participants with OA particularly those who were older compared with our healthy controls, as well as increased knee moments. Knee adduction moment correlated with structural parameters in the subset of OA patients. Increased knee moments and altered kinematics were observed in older participants presenting with OA only, which seem to be related to morphological changes in the joint due to OA, as opposed to being related to the initial cause of medial knee OA.

38 A. FOOT AND ANKLE

Foot pain and psychological factors

Foot pain severity is associated with the ratio of visceral to subcutaneous fat mass, fat-mass index and depression in women.

Walsh TP^{1,2}, Arnold JB³, Gill TK⁴, Evans AM⁵, Yaxley A⁶, Hill CL^{4,7}, Shanahan EM^{8,9}.

Body composition and poor mental health are risk factors for developing foot pain, but the role of different fat deposits and psychological features related to chronic pain are not well understood.

The aim of this study was to investigate the association between body composition, psychological health and foot pain. Eighty-eight women participated in this study: 44 with chronic, disabling foot pain (mean age 55.3 SD 7.0 years, BMI 29.5 SD 6.7 kg/m²), and 44 age and BMI matched controls. Disabling foot pain was determined from the functional limitation domain of the Manchester Foot Pain and Disability Index. Body composition was measured using dual X-ray absorptiometry and psychological health (catastrophisation, central sensitisation and depression) was measured using three validated questionnaires. Between-group analyses found that foot pain was not significantly associated with body composition variables, but was significantly associated with all psychological health measures ($P < 0.001-0.047$). Within-group analyses found that the severity of foot pain was significantly correlated with body composition measures: fat mass (total, android, gynoid, and visceral), fat-mass ratios [visceral/subcutaneous (VAT/SAT), visceral/android], fat-mass index (FMI), and depression. In multivariable analysis, VAT/SAT (β 1.27, 95% CI 0.28-2.27), FMI (β 0.14, 95% CI 0.02-0.25) and depression (β 0.06, 95% CI 0.00-0.12) were independently associated with foot pain severity.

Psychological health, not body composition, was associated with prevalent foot pain. For women with foot pain, VAT/SAT, FMI and depression were associated with severity. Further work is needed to determine if a reduction in fat mass reduces the severity of foot pain.

KEYWORDS:

Foot; Intra-abdominal fat; Obesity; Pain

40. ANKLE SPRAINS AND INSTABILITY

Test for ankle instability

Anterolateral talar palpation: a complementary test for ankle instability

João Ellera Gomes, Arthur F. Soares, Carlos E. Bastiani, Jacqueline Vieira de Castro

DOI: <http://dx.doi.org/10.1016/j.fas.2017.05.006>

Highlights

- Is the treatment of ankle instability necessarily dependent on imaging tests?
- Assessment technique to complement the diagnostic hypothesis of ankle instability.
- Noninvasive complementary maneuver to improve the traditional anterior drawer test.
- Complementary, sensitive test for ankle instability.
- Maneuver to improve the diagnosis of ankle instability during clinical evaluation.

Abstract

Background

The anterior drawer test is traditionally used to assess ankle instability, but we believe that there is room for a small but effective improvement by adding digital palpation of the talus. We aimed to determine the accuracy of anterolateral talar palpation (ATP) in the diagnosis of ankle instability by comparing it with the traditional anterior drawer test.

Methods

Fourteen symptomatic and 10 asymptomatic patients were examined for excessive mobility through comparison of both ankles by two blinded orthopedic surgeons, each one using one of the above-mentioned tests. Symptomatic patients were also referred for stress radiography and magnetic resonance imaging (MRI).

Results

ATP was the most sensitive test, but also the least specific, yielding more positive results than the other tests, including tests with negative MRI. ATP and radiography had the highest accuracy and highest level of agreement with MRI.

Conclusions

ATP significantly improved diagnostic accuracy in detecting ankle instability.

Compression helps

Eur J Trauma Emerg Surg. 2017 Jun 17. doi: 10.1007/s00068-017-0801-y

Compression therapy after ankle fracture surgery: a systematic review.

Winge R¹, Bayer L², Gottlieb H³, Ryge C⁴.

PURPOSE:

The main purpose of this systematic review was to investigate the effect of compression treatment on the perioperative course of ankle fractures and describe its effect on edema, pain, ankle joint mobility, wound healing complication, length of stay (LOS) and time to surgery (TTS). The aim was to suggest a recommendation to clinicians considering implementing compression therapy in the standard care of the ankle fracture patient, based on the existing literature.

METHODS:

We conducted a systematic search of literature including studies concerning adult patients with unstable ankle fractures undergoing surgery, testing either intermittent pneumatic compression, compression bandage and/or compression stocking and reporting its effect on edema, pain, ankle joint mobility, wound healing complication, LOS and TTS. To conclude on data a narrative synthesis was performed.

RESULTS:

The review included eight studies (451 patients). Seven studies found a significant effect on edema, two studies described a significant reduction in pain, one a positive effect on ankle movement, two a positive effect on wound healing, one a reduction in LOS and finally two studies reported reduction in TTS. A systematic bias assessment showed that the included studies had methodological limitations influencing the confidence in the effect estimate.

CONCLUSIONS:

Compression therapy has a beneficial effect on edema reduction and probably a positive effect on pain and ankle joint mobility, but with the methodological limitations in the included studies it is not possible to make a solid conclusion on the effect on wound healing, LOS and TTS.

KEYWORDS:

Ankle fracture; Compression treatment; Edema; Length of hospitalization; Pain; Wound complications

PMID: 28624992

DOI: 10.1007/s00068-017-0801-y

42. PLANTAR SURFACE

Comparisons of modalities

Magnetic Resonance Imaging and Clinical Outcomes of Laser Therapy, Ultrasound Therapy, and Extracorporeal Shock Wave Therapy for Treatment of Plantar Fasciitis: A Randomized Controlled Trial.

Ulusoy A1, Cerrahoglu L2, Orguc S3.

Abstract

We determined and compared the effectiveness of low-level laser therapy (LLLT), therapeutic ultrasound (US) therapy, and extracorporeal shock wave therapy (ESWT) using magnetic resonance imaging (MRI). We performed a randomized, prospective, comparative clinical study. A total of 60 patients with a diagnosis of chronic plantar fasciitis were divided randomly into 3 treatment groups: group 1 underwent 15 sessions of LLLT (8 J/cm²; 830 nm); group 2 underwent 15 sessions of continuous US (1 mHz; 2 W/cm²); and group 3 underwent 3 sessions of ESWT (2000 shocks). All patients were assessed using the visual analog scale (VAS), heel tenderness index (HTI), American Orthopaedic Foot and Ankle Society (AOFAS) ankle-hindfoot scale, Roles-Maudsley score, and MRI before and 1 month after treatment. The primary efficacy success criterion was the percentage of decrease in heel pain of >60% from baseline at 1 month after treatment for ≥ 2 of the 3 heel pain (VAS) measurements. Significant improvement was measured using the mean VAS, AOFAS scale, and HTI scores for all 3 groups. The thickness of the plantar fascia had decreased significantly on MRI in all 3 groups. The treatment success rate was 70.6% in the LLLT group, 65% in the ESWT group, and 23.5% in the US group. LLLT and ESWT proved significantly superior to US therapy using the primary efficacy criterion ($p = .006$ and $p = .012$, respectively), with no significant difference between the LLLT and ESWT groups ($p > .05$).

The treatment of chronic plantar fasciitis with LLLT and ESWT resulted in similar outcomes and both were more successful than US therapy in pain improvement and functional outcomes.

Low evidence for conservative care**The effectiveness of conservative, non-pharmacological treatment for plantar heel pain: A systematic review with meta-analysis**

Stefano Salvioli, Maddalena Guidi, Maddalena Guidi, Giulia Marcotulli

Abstract

Plantar heel pain is one of the most common causes of pain and musculoskeletal pathologies of the foot. The aim of this systematic review was to identify the most effective, conservative and non-pharmacological treatments regarding pain in patients with plantar heel pain.

Authors searched in 5 databases and included only randomized control trials which investigated the efficacy of a conservative non-pharmacological treatment compared to the placebo, for the outcome of pain.

Study selection, data collection and risk of bias assessment were conducted independently by two authors, and consensus was reached with a third author.

Results were quantitatively summarized in meta-analyses, by separating homogeneous subgroups of trials by type of intervention.

A total of 20 studies that investigated the efficacy of 9 different types of interventions were included, with a total of 4 meta-analyses carried out.

The interventions: shock waves, laser therapy, orthoses, pulsed radiofrequency, dry-needling, and calcaneal taping resulted in being effective treatments for the outcome pain in patients with plantar heel pain when compared to the placebo. However, considering that the improvements were very small, and the quality of evidence was mostly low or moderate for many of the interventions, it was not possible to give definitive conclusions for clinical practice.

45 B. MANUAL THERAPY CERVICAL**No better than placebo**

Eur J Phys Rehabil Med. 2017 Jun;53(3):333-341. doi: 10.23736/S1973-9087.17.04431-8. Epub 2017 Feb 17.

Effect of cervical vs. thoracic spinal manipulation on peripheral neural features and grip strength in subjects with chronic mechanical neck pain: a randomized controlled trial.

Bautista-Aguirre F^{1,2}, Oliva-Pascual-Vaca Á³, Heredia-Rizo AM⁴, Boscá-Gandía JJ², Ricard F², Rodríguez-Blanco C⁴.

BACKGROUND:

Cervical and thoracic spinal manipulative therapy has shown positive impact for relief of pain and improve function in non-specific mechanical neck pain. Several attempts have been made to compare their effectiveness although previous studies lacked a control group, assessed acute neck pain or combined thrust and non-thrust techniques.

AIM:

To compare the immediate effects of cervical and thoracic spinal thrust manipulations on mechanosensitivity of upper limb nerve trunks and grip strength in patients with chronic non-specific mechanical neck pain.

DESIGN:

Randomized, single-blinded, controlled clinical trial.

SETTING:

Private physiotherapy clinical consultancy.

POPULATION:

Eighty-eight subjects (32.09±6.05 years; 72.7% females) suffering neck pain (grades I or II) of at least 12 weeks of duration.

METHODS:

Participants were distributed into three groups: 1) cervical group (N.=28); 2) thoracic group (N.=30); and 3) control group (N.=30). One treatment session consisting of applying a high-velocity low-amplitude spinal thrust technique over the lower cervical spine (C7) or the upper thoracic spine (T3) was performed, while the control group received a sham-manual contact. Measurements were taken at baseline and after intervention of the pressure pain threshold over the median, ulnar and radial nerves. Secondary measures included assessing free-pain grip strength with a hydraulic dynamometer.

RESULTS:

No statistically significant differences were observed when comparing between-groups in any of the outcome measures ($P>0.05$). Those who received thrust techniques, regardless of the manipulated area, reported an immediate increase in mechanosensitivity over the radial (both sides) and left ulnar nerve trunks ($P<0.05$), and grip strength ($P<0.001$). For those in the control group, right hand grip strength and pain perception over the radial nerve also improved ($P\leq 0.025$).

CONCLUSIONS:

Low-cervical and upper-thoracic thrust manipulation is no more effective than placebo to induce immediate changes on mechanosensitivity of upper limb nerve trunks and grip strength in patients with chronic non-specific mechanical neck pain.

CLINICAL REHABILITATION IMPACT:

A single treatment session using cervical or thoracic thrust techniques is not enough to achieve clinically relevant changes on neural mechanosensitivity and grip strength in chronic non-specific mechanical neck pain.

48 B. TRIGGER POINTS NEEDLING/ACUPUNCTURE**Shoulder acupuncture points****Detection of peripheral and central sensitisation at acupoints in patients with unilateral shoulder pain in Beijing: a cross-sectional matched case-control study.**

Yan CQ1, Zhang S1, Li QQ1, Zhang LW1, Wang XR1, Fu QN1, Shi GX1, Liu CZ1.

OBJECTIVE:

To investigate the pattern of experimental pain responses at acupoints in patients with unilateral shoulder pain.

DESIGN:

A cross-sectional matched study.

SETTING:

Acupuncture and Moxibustion Department, Beijing Hospital of Traditional Chinese Medicine Affiliated to Capital Medical University.

PARTICIPANTS:

Volunteer samples of 60 participants (30 patients with unilateral shoulder pain, 30 healthy controls).

INTERVENTIONS:

Not applicable.

MAIN OUTCOME MEASURES:

Pressure pain thresholds (PPTs) were measured at four acupoints-namely, *Tianzong* (SI 11), *Jianliao* (SJ 14), *Jianyu* (LI 15) and *Jianzhen* (SI 9), on the painful/non-painful side in patients with unilateral shoulder pain or healthy controls, respectively. The correlations between the Peripheral Sensitisation Index (PSI) and Central Sensitisation Index (CSI) were compared.

RESULTS:

Analysis showed significantly lower PPT values at acupoints on the painful side compared with the non-painful side in patients with shoulder pain ($p < 0.025$). Meanwhile, PPTs on the non-painful side of these patients were lower than those on the ipsilateral side of healthy controls ($p < 0.025$). No significant differences in PPT values were found between the non-acupoint of the painful/non-painful side in patients with shoulder pain and the ipsilateral side of healthy controls ($p > 0.05$). Additionally, it was observed that the pressure pain assessment acupoints have a strong association with PSI and CSI; three acupoints, in particular, SJ 14, LI 15 and SI 9, showed a correlation with PSI and CSI.

CONCLUSION:

The results suggest the presence of peripheral and central sensitisation at acupoints in participants with unilateral shoulder pain. There exists an obvious relationship among the three acupoints SJ 14, LI 15 and SI 9, which are usually chosen to treat shoulder pain. The results provide evidence for the selection of acupoints to treat shoulder pain by acupuncture.

52. EXERCISE

Exercise and bone health

Exercise for improving bone health in women treated for stages I–III breast cancer: a systematic review and meta-analyses

Fornusek, C.P. & Kilbreath, S.L. *J Cancer Surviv* (2017).

Purpose

The purpose of this study was to evaluate the efficacy of exercise, either alone or in combination with other interventions, compared to a control, for the preservation of bone mineral density (BMD) in early breast cancer (BC) patients.

Methods

A systematic search was conducted to identify randomized or quasi-randomized trials which met inclusion criteria including prescribed exercise for ≥ 12 months. Ten publications from seven randomized controlled trials (RCTs), involving 1199 participants, were identified. Data on primary and secondary outcome measures related to BMD at the lumbar spine, total hip, femoral neck and greater trochanter were analysed. Meta-analyses were limited to subgroups by menopausal status as other data could not be pooled.

Results

Based on mean differences or mean percentage differences between groups at 1 year, exercise did not preserve BMD or bone mineral content at any site in post-menopausal women. In contrast, evidence from one RCT ($n = 498$) found that exercise reduced bone loss in pre-menopausal women at the femoral neck [% MD = 1.20 (95% CI 0.22–2.18); $P = 0.02$] but not at the lumbar spine.

Conclusions

Although this review indicated that exercise may result in a clinically important preservation of bone health among pre-menopausal but not post-menopausal women, further studies are needed to confirm whether or not exercise is important in preservation of bone health in women diagnosed with early BC.

Implications for cancer survivors

Exercise alone may not be sufficient to prevent bone loss in post-menopausal women at high risk of osteoporosis. Further evidence is required to determine if it provides any benefit to pharmacological therapy.

Exercise helps mobility**Exercise's effect on mobility disability in older adults with and without obesity: The LIFE study randomized clinical trial.**

Kritchevsky SB1, Lovato L2, Handing EP1, Blair S3, Botosaneanu A4, Guralnik JM5, Liu C6, King A7, Marsh AP8, Pahor M9, Rejeski WJ8, Spring B10, Manini T9.

OBJECTIVE:

Some data suggest that obesity blunts the benefits of exercise on mobility in older adults. This study tested the homogeneity of the effect of a physical activity intervention on major mobility disability (MMD) across baseline obesity classifications in the Lifestyle Interventions and Independence for Elders (LIFE) Study. LIFE randomized 1,635 sedentary men and women aged 70 to 89 years to a moderate-intensity physical activity (PA) or health education program.

METHODS:

MMD, defined as the inability to walk 400 m, was determined over an average follow-up of 2.6 years. Participants were divided into four subgroups: (1) nonobese (BMI < 30 kg/m² ; n = 437); (2) nonobese with high waist circumference (WC > 102 cm [men], > 88 cm [women]; n = 434); (3) class 1 obesity (30 kg/m² ≤ BMI < 35 kg/m² ; n = 430); and (4) class 2 + obesity (BMI ≥ 35 kg/m² ; n = 312). Cox proportional hazard modeling was used to test an obesity by intervention interaction.

RESULTS:

The PA intervention had the largest benefit in participants with class 2 + obesity (hazard ratio 0.69, 95% confidence interval 0.48, 0.98). However, there was no statistically significant difference in benefit across obesity categories.

CONCLUSIONS:

A structured PA program reduced the risk of MMD even in older adults with extreme obesity.

Exercise helps tumor survivors

Eur J Cancer. 2017 Jul;80:63-72. Epub 2017 May 25.

Exercise training improves physical function and fitness in long-term paediatric brain tumour survivors treated with cranial irradiation.

Piscione PJ¹, Bouffet E², Timmons B³, Courneya KS⁴, Tetzlaff D¹, Schneiderman JE⁵, de Medeiros CB⁶, Bartels U², Mabbott DJ⁷.

Abstract

AIMS:

We examined the efficacy of exercise training for improving physical functioning and cardiopulmonary fitness in survivors of paediatric brain tumours (BTs) treated with cranial irradiation.

METHODS:

We conducted a controlled clinical trial with crossover of exercise training versus no training in the community in either a group or combined group/home setting. A volunteer sample of 28 children treated with cranial irradiation for brain tumours completed training (mean age = 11.53 years; mean time since diagnosis = 5.25 years). end-points were physical functioning assessed by four subtests from the Bruininks-Oseretsky Test of motor performance (BOT-2) and pro-rated work rate from a cycle ergometer. Linear mixed modelling was used to evaluate time, training, training setting, and carryover effects.

RESULTS:

Adherence to training was 84%. Performance on the BOT-2 was below average for all assessments. However, training resulted in improvement in bilateral coordination ($F(1, 30) = 6.59, p = 0.02$), irrespective of training setting and improved performance was maintained even approximately 12°weeks after training had ended ($F(1, 24) = 9.60, p = 0.005$). Training resulted in increased pro-rated work rate for participants in the group training setting only ($F(1, 25) = 4.57, p = 0.04$) and these participants maintained their improved work rate approximately 12°weeks after training had ended ($F(1, 20) = 8.38, p = 0.01$).

CONCLUSION:

Exercise training improves physical functioning and fitness in paediatric BT survivors. Exercise interventions that ameliorate adverse physical effects and promote health in long-term survivors are highly recommended in this vulnerable population. (ClinicalTrials.gov, NCT01944761).

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KEYWORDS:

Brain tumour; Exercise training; Fitness; Paediatric; Physical function; Radiation; Survivorship

Sprint athletes have improved bone structure

Osteoporos Int. 2017 Jun 16

Effects of a 20-week high-intensity strength and sprint training program on tibial bone structure and strength in middle-aged and older male sprint athletes: a randomized controlled trial.

Suominen TH¹, Korhonen MT², Alén M³, Heinonen A⁴, Mero A⁴, Törmäkangas T², Suominen H⁴.

Abstract

This randomized, controlled, high-intensity strength and sprint training trial in middle-aged and older male sprint athletes showed significant improvements in mid-tibial structure and strength. The study reveals the adaptability of aging bone, suggesting that through a novel, intensive training stimulus it is possible to strengthen bones during aging.

INTRODUCTION:

High-load, high-speed and impact-type exercise may be an efficient way of improving bone strength even in old age. We evaluated the effects of combined strength and sprint training on indices of bone health in competitive masters athletes, who serve as a group of older people who are likely to be able to participate in vigorous exercise of this kind.

METHODS:

Seventy-two men (age 40-85) were randomized into an experimental (EX, n = 40) and a control (CTRL, n = 32) group. EX participated in a 20-week program combining heavy and explosive strength exercises with sprint training. CTRL maintained their usual, run-based sprint training schedules. Bone structural, strength and densitometric parameters were assessed by peripheral QCT at the distal tibia and tibial midshaft.

RESULTS:

The intervention had no effects on distal tibia bone traits. At the mid-tibia, the mean difference in the change in cortical thickness (Th_{CO}) in EX compared to CTRL was 2.0% ($p = 0.007$). The changes in structure and strength were more pronounced in the most compliant athletes (training adherence >75%). Compared to CTRL, total and cortical cross-sectional area, Th_{CO} , and the area and density-weighted moments of inertia for the direction of the smallest flexural rigidity (I_{minA} , I_{minD}) increased in EX by 1.6-3.2% ($p = 0.023-0.006$). Polar mass distribution analysis revealed increased BMC at the anteromedial site, whereas vBMD decreased ($p = 0.035-0.043$).

CONCLUSIONS:

Intensive strength and sprint training improves mid-tibia structure and strength in middle-aged and older male sprint athletes, suggesting that in the presence of high-intensity loading exercise, the adaptability of the bone structure is maintained during aging.

KEYWORDS:

Aging; BMD; Bone pQCT; Exercise; High-impact training; Masters athlete; Strength training

Regular Qigong helps

Effect of Qigong exercise on cognitive function, blood pressure and cardiorespiratory fitness in healthy middle-aged subjects

Suphannika Ladawan, Kultida Klarod, Marc Philippe, Verena Menz, IngaVersen, Hannes Gatterer, Martin Burtscher

To investigate effects of Qigong exercise on cognitive function, blood pressure and cardiorespiratory fitness in healthy middle-aged subjects.

Methods

Study part 1 examined the effects of Qigong exercise in 12 subjects (5 males, 7 females, aged 52.2 ± 7.1 years) who performed Qigong for 8 weeks (60 min sessions, 3 times/week). Study part 2 evaluated the detraining effects 12 weeks after cessation of Qigong. Cognitive function (Digit Span Forward and Backward Test, Trail Making Tests part A and B), blood pressure, and exercise performance were determined at baseline, immediately after the training programme, and after the detraining period.

Results

Qigong exercise showed a significant improvement of Trail Making Tests part A ($p = 0.04$), systolic blood pressure ($p = 0.001$), diastolic blood pressure ($p = 0.005$), mean arterial pressure ($p < 0.001$), and maximal workload ($p = 0.032$). Twelve weeks after cessation, Trail Making Tests part A, systolic blood pressure, diastolic blood pressure, mean arterial pressure, and maximal workload had returned to baseline ($p = 0.050, 0.007, 0.001, 0.001, \text{ and } 0.017$, compared to after the training, respectively).

Conclusion

These results suggest that Qigong exercise effectively improved attention, brain processing speed, blood pressure and maximal workload. However, these improvements disappeared 12 weeks after cessation of Qigong. Consequently, performing Qigong regularly is important to maintain related health effects.

Keywords:

Qigong, cognitive function, blood pressure, cardiorespiratory fitness

PA helps BP

Physical activity and blood pressure in 10,000 Mediterranean adults: the EPIC-Florence cohort.

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R.M. Bruno, S. Caini, C. Saieva, A. Ungar, L. Ghiadoni,

D. Palli✉ Correspondence information about the author D. Palli✉ Email the author D. Palli

DOI: <http://dx.doi.org/10.1016/j.numecd.2017.06.003>

Abstract**Background and Aims**

The relevant role of physical activity (PA) in cardiovascular risk prevention is widely agreed. We aimed to evaluate, in a large Mediterranean population, the influence of PA on systolic (SBP) and diastolic blood pressure (DBP), taking into account individual characteristics and lifestyle habits.

Methods and Results

In the Florence section of the European Prospective Investigation into Cancer and Nutrition 10,163 individuals, 35-64 years, without a previous diagnosis of hypertension were recruited. Information on occupational and leisure-time PA and blood pressure were collected at recruitment, together with data on lifestyle, dietary habits and anthropometry. Multivariate regression models were applied to evaluate the effect of total, occupational and leisure-time PA on SBP and DBP.

Mean values of SBP and DBP in the study subjects were 124.4 (SD 15.6) and 79.7 mmHg (SD 9.4), respectively. Overall, a total PA index and an index including cycling, fitness and occupational PA (Cambridge index) were inversely associated with DBP (beta -0.87, p-value 0.02 actives vs inactives, p for trend 0.02 and beta -0.84, p value 0.003 actives vs inactives, p for trend 0.002, respectively), while SBP was associated only with the latter index (beta -1.14, p-value 0.01 actives vs inactives, p for trend 0.006). An inverse association emerged between manual/heavy manual occupation and DBP (p 0.02, ref sedentary/standing occupation) and between increasing cycling activity and SBP (p for trend 0.04).

Conclusions

In this large cohort of Mediterranean adults without a diagnosis of hypertension we confirm the role of overall PA in modulating SBP and DBP values. Cycling and manual occupations were associated with lower DBP values.

Yoga seems safe

Rheumatol Int. 2017 Jul;37(7):1145-1148. doi

Associations between yoga practice and joint problems: a cross-sectional survey among 9151 Australian women.

Lauche R¹, Schumann D², Sibbritt D³, Adams J³, Cramer H^{3,2}.

Abstract

Yoga exercises have been associated with joint problems recently, indicating that yoga practice might be potentially dangerous for joint health. This study aimed to analyse whether regular yoga practice is associated with the frequency of joint problems in upper middle-aged Australian women. Women aged 62-67 years from the Australian Longitudinal Study on Women's Health (ALSWH) were questioned in 2013 whether they experienced regular joint pain or problems in the past 12 months and whether they regularly practiced yoga. Associations of joint problems with yoga practice were analysed using Chi-squared tests and multiple logistic regression modelling. Of 9151 women, 29.8% reported regular problems with stiff or painful joints, and 15.2, 11.9, 18.1 and 15.9% reported regular problems with shoulders, hips, knees and feet, respectively, in the past 12 months. Yoga was practiced sometimes by 10.1% and often by 8.4% of women.

Practicing yoga was not associated with upper or lower limb joint problems. No association between yoga practice and joint problems has been identified. Further studies are warranted for conclusive judgement of benefits and safety of yoga in relation to joint problems.

KEYWORDS:

Joint problems; Safety; Women's health; Yoga

Yoga may help neuro population

J Clin Neurosci. 2017 Jun 6.

Evidence based effects of yoga in neurological disorders.

Mooventhan A¹, Nivethitha L².

Abstract

Though yoga is one of the widely used mind-body medicine for health promotion, disease prevention and as a possible treatment modality for neurological disorders, there is a lack of evidence-based review. Hence, we performed a comprehensive search in the PubMed/Medline electronic database to review relevant articles in English, using keywords "yoga and neurological disorder, yoga and multiple sclerosis, yoga and stroke, yoga and epilepsy, yoga and Parkinson's disease, yoga and dementia, yoga and cerebrovascular disease, yoga and Alzheimer disease, yoga and neuropathy, yoga and myelopathy, and yoga and Guillain-Barre syndrome". A total of 700 articles published from 1963 to 14th December 2016 were available. Of 700 articles, 94 articles were included in this review.

Based on the available literature, it could be concluded that yoga might be considered as an effective adjuvant for the patients with various neurological disorders.

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KEYWORDS: Neurological disorder; Review; Yoga

54. POSTURE**Some factors for LBP in adolescent athletes****Late bedtimes, short sleeping time, and longtime video-game playing are associated with low back pain in school-aged athletes.**

Yabe Y1, Hagiwara Y2,3, Sekiguchi T1, Momma H4, Tsuchiya M5, Kuroki K6,7, Kanazawa K1, Koide M1, Itaya N1, Itoi E1, Nagatomi R6,4.

Author information**Abstract****PURPOSE:**

Low back pain is a significant problem for school-aged athletes. Although some risk factors relating to sports activities have been reported, the effect of lifestyles on low back pain in school-aged athletes is not clear. The purpose of this study was to elucidate the association between lifestyles, such as wake-up time, bedtime, sleeping time, and TV-viewing or video-game-playing time per day and low back pain of school-aged athletes.

METHODS:

A cross-sectional study was conducted with school-aged athletes (aged 6-15 years, n = 6441) using a self-reported questionnaire and multivariate logistic regression models were used for analyses. Variables considered in the models were gender, age, body mass index, team levels, number of days in practice per week, number of hours in practice per day, and lifestyles.

RESULTS:

The frequency of low back pain was 5.0% (n = 322). Late bedtime, short sleeping time, and long video-game-playing time per day were significantly associated with low back pain. There was no significant association between low back pain and wake-up time or TV-viewing time per day.

CONCLUSION:

Unhealthy life-style choices, such as late bedtimes, short sleeping time, and longtime video-game playing, were associated with low back pain in school-aged athletes.

Kinesio taping helps**The effect of Kinesio Taping on postural control in subjects with non-specific chronic low back pain**

Soheila Abbasi, Zahra Rojhani-Shirazi

DOI: <http://dx.doi.org/10.1016/j.jbmt.2017.06.003>

Abstract**Purpose**

The aim of this study was to investigate the possible alterations in postural control during upright standing in subjects with non-specific chronic low back pain and the effect of Kinesio taping on the postural control.

Methods

Twenty subjects with non-specific chronic low back pain and twenty healthy subjects participated in this study. The center of pressure excursion was evaluated before the intervention for both groups, and immediately after intervention for the low back pain group. Independent sample t-test, Mann-Whitney test and repeated measure ANOVA were used for the statistical analysis of the data.

Results

There were significant differences in the center of pressure excursion between the low back pain group versus the healthy group. The results of the ANOVA demonstrated a statistically significant difference in the mean COP displacement and velocity before Kinesio Taping, immediately after, and 24 hours after in the low back pain group.

Conclusions

There are poor postural control mechanisms in subjects with non-specific chronic low back pain. Kinesio taping seems to change postural control immediately and have lasting effects until the day after.

55. SCOLIOSIS

Anorexia prevalent in scoliosis patients

Prevalence of idiopathic scoliosis in anorexia nervosa patients: results from a cross-sectional study.

Zaina F¹, Pesenti F², Persani L^{2,3}, Capodaglio P⁴, Negrini S^{5,6}, Polli N^{2,3}.

Abstract

PURPOSE:

A long debate exists about the connection between anorexia nervosa (AN) and scoliosis due to conflicting evidence. No study so far has evaluated the prevalence of scoliosis in patients with AN. The aim of the study is to evaluate the prevalence of idiopathic scoliosis in patients with AN.

METHODS:

Design: cross-sectional study.

STUDY GROUP:

convenience sample of all patients matching the inclusion criteria.

CONTROL GROUP:

female participants coming from an epidemiological screening for scoliosis.

INCLUSION CRITERIA:

patients had a diagnosis of AN during adolescence according to the DSM-IV-TR criteria. We applied a two-level screening using a Bunnell scoliometer and a radiograph. We calculated the odds ratio compared with participants coming from a school screening.

RESULTS:

Seventy-seven females with AN were compared to 816 females screened for scoliosis. The prevalence of scoliosis in the AN group was 16.9% (OR 5.77, 95% CI 3.12-10.67) with respect to the control group. If we consider as positive only those who received a scoliosis diagnosis during adolescence, the OR would be 3.15 (95% CI 1.55-6.42).

DISCUSSION:

This is the first study performed on patients with AN showing a sixfold greater odds of presenting with scoliosis. A cause-effect relationship cannot be determined due to the design.

KEYWORDS:

Adolescent; Anorexia; Idiopathic; Scoliosis

59. PAIN

Pain thresholds changed in premature

Pain threshold, tolerance and intensity in adolescents born very preterm or with low birth weight

Background

Data on long-term consequences of neonatal pain is limited.

Aim

To assess whether perinatal factors, later pain experience and pain coping strategies are associated with altered pain threshold, pain tolerance and pain intensity in adolescents born preterm.

Study design

Observational, longitudinal study (Project on Preterm and SGA-infants, POPS-19).

Subjects

We analyzed data of 412 adolescents at the age of 19 years, who were born at a gestational age < 32 weeks or with a birth weight < 1500 g.

Outcome measures

Participants performed a standardized cold pressor test to assess pain threshold, tolerance and intensity. Furthermore, they completed a pain coping questionnaire (PCQ).

Results

In univariate analysis, female gender and necrotizing enterocolitis (NEC) were associated with lower pain tolerance, indicated by reaching the ceiling time of 180 s in ice water (females 19% vs males 29%, NEC 7% vs no NEC 25%). Female gender was associated with higher pain intensity (mean difference 0.58; 95%CI 0.21; 0.95) and lower pain threshold (log rank test p 0.007). In a multivariate Cox regression analyses, emotion focused avoidance pain coping style was significantly associated with lower pain threshold (hazard ratio HR 1.38; 95%CI 1.02; 1.87) and pain tolerance (HR 1.72; 95%CI 1.21; 2.42). NEC was significantly associated with lower pain threshold (HR 1.47; 95%CI 1.01; 2.14) and pain tolerance (HR 1.63; 95%CI 1.09; 2.41).

Conclusion

In adolescence, maladaptive pain coping strategy was associated with lower pain threshold, pain tolerance and higher pain intensity. NEC was associated with altered pain response in adolescents born preterm.

Facet pain

Painful Cervical Facet Joint Injury Is Accompanied by Changes in the Number of Excitatory and Inhibitory Synapses in the Superficial Dorsal Horn That Differentially Relate to Local Tissue Injury Severity

Study Design. Immunohistochemistry labeled pre- and postsynaptic structural markers to quantify excitatory and inhibitory synapses in the spinal superficial dorsal horn at 14 days after painful facet joint injury in the rat.

Objective. The objective of this study was to investigate the relationship between pain and synapse density in the spinal cord after facet injury.

Summary of Background Data. Neck pain is a major contributor to disability and often becomes chronic. The cervical facet joints are susceptible to loading-induced painful injury, initiating spinal central sensitization responses. Although excitatory synapse plasticity has been reported in the superficial dorsal horn early after painful facet injury, whether excitatory and/or inhibitory synapse density is altered at a time when pain is maintained is unknown.

Methods. Rats underwent either a painful C6/C7 facet joint distraction or sham surgery. Mechanical hyperalgesia was measured and immunohistochemistry techniques for synapse quantification were used to quantify excitatory and inhibitory synapse densities in the superficial dorsal horn at day 14. Logarithmic correlation analyses evaluated whether the severity of facet injury correlated with either behavioral or synaptic outcomes.

Results. Facet joint injury induces pain that is sustained until day 14 ($P < 0.001$) and both significantly greater excitatory synapse density ($P = 0.042$) and lower inhibitory synapse density ($P = 0.0029$) in the superficial dorsal horn at day 14. Injury severity is significantly correlated with pain at days 1 ($P = 0.0011$) and 14 ($P = 0.0002$), but only with inhibitory, not excitatory, synapse density ($P = 0.0025$) at day 14.

Conclusion. This study demonstrates a role for structural plasticity in both excitatory and inhibitory synapses in the maintenance of facet-mediated joint pain, and that altered inhibitory, but not excitatory, synapse density correlates to the severity of painful joint injury. Understanding the functional consequences of this spinal structural plasticity is critical to elucidate mechanisms of chronic joint pain.

Level of Evidence: N/A

Remote management systems may help**The pain course: a randomised controlled trial comparing a remote-delivered chronic pain management program when provided in online and workbook formats**

Abstract: This study compared a remote-delivered pain management program, the Pain Course, when delivered in online and workbook formats. Participants (n = 178) were randomised into 2 groups: (1) an Internet Group (n = 84) who were provided with secure accounts to the program in an online format; or (2) a Workbook Group (n = 94) who were mailed workbook versions of the program. The content of both programs was identical and comprised 5 core lessons, which participants were encouraged to work through over an 8-week period, according to a prescribed timetable. All participants were provided with weekly contact with a clinical psychologist through email and telephone throughout the program. The overall findings suggest that the workbook format was no less effective or acceptable than the validated online format. Significant improvements (avg. improvement; Internet Group vs Workbook Group) in levels of disability (PDI: 16% vs 24%; RMDQ: 12% vs 15%), anxiety (GAD-7: 36% vs 26%), and depression (PHQ-9: 36% vs 36%) were observed in both groups immediately posttreatment. Further improvements were observed in disability levels to 3-month follow-up, and improvements across the other primary outcomes were maintained until 12-month follow-up. High treatment completion rates and levels of satisfaction were reported in both groups, and both groups required a similarly small amount of clinician contact per participant (M = 74.85 minutes; SD = 41.03). These results highlight the public health potential of remote-delivered pain management programs, delivered in either workbook or online formats, as methods of increasing access to pain management.

CSI insightful

Use of the central sensitization inventory (CSI) as a treatment outcome measure for chronic spinal pain disorder patients in a functional restoration program

Randy Neblett, M.A., L.P.C., BCB, Meredith M. Hartzell, Ph.D., Mark Williams, Ph.D., Kelley R. Bevers, Ph.D. Candidate, Tom G. Mayer, M.D. Robert J. Gatchel, Ph.D., ABPP

DOI: <http://dx.doi.org/10.1016/j.spinee.2017.06.008>

Background Context The *Central Sensitization Inventory* (CSI) is a valid and reliable patient-reported instrument designed to identify patients whose presenting symptoms may be related to Central Sensitization (CS). Part A of the CSI measures a full array of 25 somatic and emotional symptoms associated with CS, and Part B asks if patients have previously been diagnosed with one or more specific Central Sensitivity Syndromes (CSSs) and related disorders. The CSI has previously been validated in a group of chronic pain patients who were screened by a trained psychiatrist for specific CSS diagnoses. It is currently unknown if the CSI can be a useful treatment-outcome assessment tool for chronic spinal pain disorder (CSPD) patients who are not screened for comorbid CSSs. It is known, however, that previous studies have identified CS-related symptoms, and comorbid CSSs, in subsets of patients with CSPDs. Studies have also shown that CS-related symptoms can be influenced by cognitive and psychosocial factors, including abuse history in both childhood and adulthood, sleep disturbance, catastrophic and fear-avoidant cognitions, and symptoms of depression and anxiety. **Purpose** To evaluate CSI scores, and their associations with other clinically-relevant psychosocial variables, in a cohort of CSPD patients who entered and completed a functional restoration program. **Study Design/Setting** A retrospective study of prospectively-collected data from a cohort study of CSPD patients who completed the CSI at admission to, and discharge from, an interdisciplinary function restoration program (FRP). **Patient Sample** A cohort of 763 CSPD patients

Outcome Measures Clinical interviews evaluated mood disorders and abuse history. A series of self-reported measures evaluated comorbid psychosocial symptoms, including pain intensity, pain-related anxiety, depressive symptoms, somatization symptoms, perceived disability, and sleep disturbance, at FRP admission and discharge. **Methods** Patients were grouped into five severity level groups, from Mild-to-Extreme, based on total CSI scores, at FRP admission, and then again at discharge. The FRP included a quantitatively-directed and medically-supervised exercise process, as well as a multimodal psychosocial disability management component.

Results The CSI severity groups were strongly associated with Major Depressive Disorder and previous abuse history ($p < .01$), which are known risk factors for CS-related symptoms and diagnoses. CSI scores were also strongly associated with patient-reported CSS diagnoses on CSI Part B. The percentage of patients who reported a comorbid CSS diagnosis increased in each higher CSI-severity group, from 11% in the Subclinical group, to 56% in the Extreme group. The CSI severity groups were significantly related to other CS-related patient-reported symptoms, including pain intensity, pain-related anxiety, depressive symptoms, somatization symptoms, perceived disability, and sleep disturbance ($ps < .001$). CSI scores, along with all other psychosocial measures, decreased at treatment discharge.

Conclusions In the present study, admission CSI scores were highly associated with previous CSS diagnoses, CS-related symptoms, and clinically relevant patient-reported psychosocial variables. All psychosocial variables, as well as scores on the CSI, were significantly improved at FRP discharge. The CSI may have important clinical utility, as a screener and as a treatment outcome measure, for CSPD patients participating in an interdisciplinary FRP.

61. FIBROMYALGIA

Many have arthritis

Fibromyalgia, a missed comorbidity in spondyloarthritis: prevalence and impact on assessment and treatment.

Mease PJ1.

PURPOSE OF REVIEW:

Fibromyalgia is a clinical representation of the neurobiological phenomenon of central sensitization, characterized by chronic widespread pain, fatigue, sleep disturbance, and other symptoms. Fibromyalgia may occur in conjunction with chronic rheumatic diseases, driven by the effects of chronic pain and inflammation and likely influenced by the patient's genetic and psychoemotional background. This article reviews the data on prevalence of concomitant fibromyalgia and its impact on disease assessment in patients with spondyloarthritis (SpA) and psoriatic arthritis (PsA).

RECENT FINDINGS:

Fibromyalgia occurs in 2-8% of the general population. In AxSpA cohorts the prevalence has been reported in 4-25%, and in PsA, 16-22%, the majority being female. Measures of disease activity which are comprised partly or wholly of patient-reported outcomes such as pain and patient global are significantly higher in patients with concomitant fibromyalgia and do not improve as much with treatment as more objective measures, a finding which has been observed in other diseases such as rheumatoid arthritis and lupus.

SUMMARY:

Fibromyalgia occurs in a significant proportion of patients with SpA and PsA. Disease activity measures with subjective elements are conflated in patients with fibromyalgia and do not reliably assess true inflammatory disease. This needs to be taken into account when evaluating the impact of immunomodulatory therapy.

62 A. NUTRITION/VITAMINS**Low Vit D and injuries****Low Vitamin D is Associated with Lower Extremity Strains and Sports Hernia Injuries in NFL Combine Athletes**

Brian Rebolledo, M.D., Jonathan Bernard, M.D., Brian Werner, M.D., Benedict Nwachukwu, M.D., M.B.A. David Dare, M.D., Russell Warren, M.D., Scott Rodeo, M.D.

Introduction

Vitamin D has been linked to overall muscle function and strength, with recent findings depicting a correlate between preseason performance and vitamin D status in NFL athletes. The purpose of our study is to evaluate the association between serum vitamin D level and the prevalence of lower extremity muscle strains or sports hernia injuries in elite level athletes at the National Football League (NFL) combine.

Methods

This is a retrospective study of 214 prospective professional athletes who participated in the 2015 NFL combine. Baseline demographic data was collected, including age, body mass index (BMI), injury history specific to lower extremity muscle strain or sports hernia, at least one missed game due to the specified injury, and Functional Movement Screen (FMS) testing scores. Serum 25(OH) vitamin D was collected at the combine visit; and defined as normal ≥ 32 ng/mL. Overall summary statistics were calculated in terms of means and standard deviations for continuous variables and frequencies and percentages for categorical variables.

Results

There were 107 (50%) players reporting previous sports hernia or lower extremity strains, who also had lower vitamin D levels than athletes without associated injury history (29.7 ± 11 ng/mL vs. 34.0 ± 13 ng/mL; $p=0.01$). Overall incidence of below normal serum vitamin D was present in 126 players (59%); including 16 (13%) with severe deficiency (<21 ng/mL). Group comparisons between low and normal vitamin D levels showed no difference in age, race, BMI or FMS scores recorded at the NFL combine (Table I).

Conclusion

Low serum vitamin D is associated with a history of sports hernia or lower extremity strains in NFL combine athletes. While no difference was found in FMS testing, low vitamin D may contribute to injury susceptibility or muscle dysfunction in this select population.

Mediterranean diet reduces fracture risk**Adherence to Mediterranean diet in relation to bone mineral density and risk of fracture: a systematic review and meta-analysis of observational studies.**

Malmir H^{1,2}, Saneei P³, Larijani B⁴, Esmailzadeh A^{5,6,7}.

PURPOSE:

We aimed to systematically review available data on the association between adherence to MD and BMD as well as risk of fractures and to summarize this information through a meta-analysis.

METHODS:

Previous studies in the field of adherence to MD in relation to BMD and risk of fracture were selected through searching PubMed, Scopus, ISI Web of Science and Google Scholar databases prior to June, 2016 using Mesh and non-Mesh relevant keywords.

RESULTS:

In the meta-analysis of four effect sizes, obtained from three studies, we found that adherence to MD was associated with a 21% reduced risk of hip fracture (overall RR 0.79; 95% CIs 0.72-0.87). Adherence to MD was positively associated with lumbar spine's (mean difference of BMD comparing highest and lowest categories of MD score 0.12; 95% CI 0.06-0.19 g/cm²), femoral neck (0.10; 0.06-0.15 g/cm²) and total hip (0.11; 0.09-0.14 g/cm²) BMD. Meta-regression of included observational studies revealed a significant inverse linear association between Mediterranean diet score and risk of hip fracture, such that one unit increase in the score of Mediterranean diet was associated with a reduction in the risk of hip fracture (RR 0.95, 95% CI 0.92-0.98 p = 0.01).

CONCLUSION:

Adherence to MD was associated with a reduced risk of fracture as well as with a higher mean BMD.

Dairy (Vit D) reduces osteoporosis**A scoping review of the public health impact of vitamin D-fortified dairy products for fracture prevention.**

Hiligsmann M1, Neuprez A2, Buckinx F2, Locquet M2, Reginster JY2.

PURPOSE:

Dairy products are rich in nutrients that positively influence bone health and hence fracture risk, and have therefore been recommended and used for fracture prevention. To help decision makers to efficiently allocate scarce resources, it is further important to assess the public health and economic impact of any health intervention. In recent years, several studies have been conducted to estimate the public health and/or economic impact of dairy products but no overview is currently available. This article aims therefore to summarize evidence and review articles that estimated the public health and/or economic impact of vitamin D-fortified dairy products for fracture prevention.

METHODS:

A literature review was conducted using PubMed to identify original studies that assessed the public health and/or economic impact of dairy products (or of calcium/vitamin D supplementation) for fracture prevention up to January 15, 2017.

RESULTS:

Seven articles were identified. Different strategies were used by the authors to model the economic/public health impact of dairy products. The four studies assessing the public health impact of dairy products revealed a substantial benefit in terms of fracture prevented, life years, disability-adjusted life years and/or quality-adjusted life years gained. Studies assessing the cost-effectiveness revealed that the use of dairy products is generally cost-effective in the general population aged above 70 years, and from the age of 60 years in populations at high risk of fractures.

CONCLUSION:

This systematic review suggests that the use of dairy products could substantially reduce the burden of osteoporotic fractures and seem to be an economically beneficial strategy.

Journal of Cancer Survivorship

Increased risk of Parkinson disease with dairy use

Neurology. 2017 Jun 8.

Intake of dairy foods and risk of Parkinson disease.

Hughes KC¹, Gao X², Kim IY², Wang M², Weisskopf MG², Schwarzschild MA², Ascherio A².

Abstract**OBJECTIVE:**

To prospectively examine the association between commonly consumed dairy products and the risk of Parkinson disease (PD) in women and men.

METHODS:

Analyses were based on data from 2 large prospective cohort studies, the Nurses' Health Study (n = 80,736) and the Health Professionals Follow-up Study (n = 48,610), with a total of 26 and 24 years of follow-up, respectively. Both US-based studies were conducted via mailed biennial questionnaires. Dietary intake was assessed with food frequency questionnaires administered repeatedly over the follow-up period. Incident cases of PD (n = 1,036) were identified via questionnaires and subsequently confirmed by reviewing medical records. We also conducted a meta-analysis to combine our study with 3 previously published prospective studies on total milk intake and PD risk and 1 study on total dairy intake and PD risk.

RESULTS:

While total dairy intake was not significantly associated with PD risk in our cohorts, intake of low-fat dairy foods was associated with PD risk. The pooled, multivariable-adjusted hazard ratio (HR) comparing people who consumed at least 3 servings of low-fat dairy per day to those who consumed none was 1.34 (95% confidence interval [CI] 1.01-1.79, *p* trend = 0.04). This association appeared to be driven by an increased risk of PD associated with skim and low-fat milk (HR 1.39, 95% CI 1.12-1.73, *p* trend <0.01). Results were similar in women and men (*p* for heterogeneity >0.05). In the meta-analysis, the pooled relative risk comparing extreme categories of total milk intake was 1.56 (95% CI 1.30-1.88), and the association between total dairy and PD became significant (HR 1.27, 95% CI 1.04-1.55).

CONCLUSIONS:

Frequent consumption of dairy products appears to be associated with a modest increased risk of PD in women and men.

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CA intake reduces risk of CV disease

Dietary calcium intake and risk of cardiovascular disease, stroke, and fracture in a population with low calcium intake.Kong SH¹, Kim JH¹, Hong AR¹, Cho NH², Shin CS³.**Abstract**

Background: The role of dietary calcium intake in cardiovascular disease (CVD), stroke, and fracture is controversial. Most previous reports have evaluated populations with high calcium intake.

Objective: We aimed to evaluate whether high dietary calcium intake was associated with the risk of CVD, stroke, and fracture in a population with low calcium intake.

Design: In a prospective cohort study beginning in 2001 in Ansung-Ansan, Korea, 2158 men and 2153 women aged >50 y were evaluated for all-cause mortality, CVD, stroke, and fractures over a median 9-y follow-up.

Results: During follow-up, 242 and 100 deaths, 149 and 150 CVD events, 58 and 82 stroke events, and 211 and 292 incident fractures occurred in men and women, respectively. The first quartiles of energy-adjusted dietary calcium intake were 249 mg/d (IQR: 169 mg/d) in men and 209 mg/d (IQR: 161 mg/d) in women. Both men and women with higher dietary calcium intake tended to have higher fat, protein, sodium, phosphorus, fruit, and vegetable intakes. In men, outcomes were not significantly associated with dietary calcium intake with or without adjustments, and CVD risk tended to increase with increasing energy-adjusted dietary calcium intake, but this was not statistically significant ($P = 0.078$ and $P = 0.093$ with and without adjustment, respectively). In women, CVD risk and dietary calcium intake showed a U-shaped association; the HRs (95% CIs) without adjustment relative to the first quartile were 0.71 (0.47, 1.07), 0.57 (0.36, 0.88), and 0.52 (0.33, 0.83) for quartiles 2, 3, and 4, respectively, and the values after adjustment were 0.70 (0.45, 1.07), 0.51 (0.31, 0.81), and 0.49 (0.29, 0.83) for quartiles 2, 3, and 4, respectively.

Conclusion: In Korean women, increased dietary calcium intake was associated with a decreased CVD risk, but it did not influence the risk of stroke or fracture.

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KEYWORDS:

CVD; Dietary calcium; bone fractures; mortality; stroke

Low Vit D and reduced fertility

Association of vitamin D intake and serum levels with fertility: results from the Lifestyle and Fertility Study.Fung JL¹, Hartman TJ², Schleicher RL³, Goldman MB⁴.**Abstract****OBJECTIVE:**

To evaluate the role of vitamin D intake and serum levels on conception of clinical pregnancy and live birth.

DESIGN:

Prospective cohort study.

SETTING:

Academic medical centers.

PATIENT(S):

Healthy, nulliparous women, age 18-39 years, and their male partners.

INTERVENTION(S):

None.

MAIN OUTCOME MEASURE(S):

Clinical pregnancy and live birth were compared between those who did or did not meet the vitamin D estimated average requirement (EAR) intake (10 µg/d) and with serum 25-hydroxyvitamin D (25(OH)D) considered at risk for inadequacy or deficiency (<50 nmol/L) or sufficient (≥50 nmol/L).

RESULT(S):

Among 132 women, 37.1% did not meet the vitamin D EAR and 13.9% had serum levels at risk for inadequacy or deficiency. Clinical pregnancies were significantly higher among women who met the vitamin D EAR (67.5% vs. 49.0%) and with sufficient serum 25(OH)D (64.3% vs. 38.9%) compared with those who did not. Live births were higher among those who met the vitamin D EAR (59.0% vs. 40.0%). The adjusted odds ratio (AOR) of conceiving a clinical pregnancy was significantly higher among those who met the EAR (AOR = 2.26; 95% confidence interval [CI], 1.05-4.86) and had sufficient serum 25(OH)D (AOR = 3.37; 95% CI, 1.06-10.70). The associations were not significant after controlling for selected nutrients and dietary quality.

CONCLUSION(S):

Women with vitamin D intake below EAR and serum 25(OH)D levels at risk for inadequacy or deficiency may be less likely to conceive and might benefit from increased vitamin D intake to achieve adequacy.

CLINICAL TRIAL REGISTRATION NUMBER:

[NCT00642590](#).

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KEYWORDS:

Vitamin D; fertility; pregnancy; serum 25(OH)D

Vit D helped IBS**Evaluation of a 12-week targeted vitamin D supplementation regimen in patients with active inflammatory bowel disease**

Mayur Garg, PhD, Ourania Rosella, BSc Hons, Gennaro Rosella, PhD, Yunqiu Wu,, John S. . LubelPeter R. Gibson, MD

Abstract**Background and aims**

Vitamin D at serum 25(OH)D concentrations above 100 nmol/L are associated with disease remission in patients with IBD, suggesting targeted dosing might be anti-inflammatory. This study aimed to assess the effectiveness, safety and predictors of a 12-week regimen of vitamin D supplementation to achieve such a target in patients with active disease.

Methods

In a pilot study, patients with active colitis and a serum 25(OH)D concentration <75 nmol/L were prescribed oral liquid vitamin D supplementation over 12 weeks using a specific protocol with dose adjusted 4-weekly to aim for a target level of 100-125 nmol/L.

Results

Five patients each with Crohn's colitis or ulcerative colitis (UC) had mean 25(OH)D concentration 52 (range 27-73 nmol/L). Five reached the targeted level and four 89-95 nmol/L. One withdrew after 4 weeks (88 nmol/L). Target dose was met only in those with BMI < 30 kg/m² and total dose inversely correlated with initial serum 25(OH)D. One patient had developed a high level at 8 weeks (146 nmol/L) and another new hypercalciuria. There were no serious adverse events attributable to the therapy. Clinical disease activity consistently declined, but faecal calprotectin and circulating markers of inflammation did not.

Conclusions

A specified oral vitamin D regimen successfully and safely achieved target or near-target levels, improved symptom-based activity scores, but did not alter objective measures of intestinal or systemic inflammation. A modified version of this dose-escalating regimen would be suitable for a randomised placebo-controlled trial, but does require regular safety monitoring.

Keywords:

Vitamin D, inflammatory bowel diseases, colitis, Crohn's disease, ulcerative colitis, cholecalciferol

Cafine intake may negatively impact male fertility

Nutr J. 2017 Jun 24;16(1):37.

Coffee and caffeine intake and male infertility: a systematic review.

Ricci E¹, Viganò P², Cipriani S³, Somigliana E⁴, Chiaffarino F³, Bulfoni A⁵, Parazzini F^{3,6}.

Abstract**BACKGROUND:**

Semen quality, a predictor of male fertility, has been suggested declining worldwide. Among other life style factors, male coffee/caffeine consumption was hypothesized to influence semen parameters, but also sperm DNA integrity. To summarize available evidence, we performed a systematic review of observational studies on the relation between coffee/caffeine intake and parameters of male fertility including sperm ploidy, sperm DNA integrity, semen quality and time to pregnancy.

METHODS:

A systematic literature search was performed up to November 2016 (MEDLINE and EMBASE). We included all observational papers that reported the relation between male coffee/caffeine intake and reproductive outcomes: 1. semen parameters, 2. sperm DNA characteristics, 3. fecundability. All pertinent reports were retrieved and the relative reference lists were systematically searched in order to identify any potential additional studies that could be included.

RESULTS:

We retrieved 28 papers reporting observational information on coffee/caffeine intake and reproductive outcomes. Overall, they included 19,967 men. 1. Semen parameters did not seem affected by caffeine intake, at least caffeine from coffee, tea and cocoa drinks, in most studies. Conversely, other contributions suggested a negative effect of cola-containing beverages and caffeine-containing soft drinks on semen volume, count and concentration. 2. As regards sperm DNA defects, caffeine intake seemed associated with aneuploidy and DNA breaks, but not with other markers of DNA damage. 3. Finally, male coffee drinking was associated to prolonged time to pregnancy in some, but not all, studies.

CONCLUSIONS:

The literature suggests that caffeine intake, possibly through sperm DNA damage, may negatively affect male reproductive function. Evidence from epidemiological studies on semen parameters and fertility is however inconsistent and inconclusive. Well-designed studies with predefined criteria for semen analysis, subject selection, and life style habits definition, are essential to reach a consistent evidence on the effect of caffeine on semen parameters and male fertility.

KEYWORDS:

Caffeine; Coffee consumption; Fecundability; Life style; Male infertility; Risk factors; Semen quality; Sperm parameters; Systematic review

Diet reduces risk of CA

Prev Med. 2017 Jun 7;101:178-187.

Diet quality is associated with reduced incidence of cancer and self-reported chronic disease: Observations from Alberta's Tomorrow Project.

Solbak NM¹, Xu JY², Vena JE², Csizmadi I³, Whelan HK², Robson PJ⁴.

Abstract

The objective of this study was to assess diet quality using the Healthy Eating Index-2005 Canada (HEI-2005-Canada) and its association with risk of cancer and chronic disease in a sample of Alberta's Tomorrow Project (ATP) participants. Food frequency questionnaires completed by 25,169 participants (38% men; mean age 50.3 (9.2)) enrolled between 2000 and 2008 were used to calculate HEI-2005-Canada scores. Data from a subset of participants (n=10,735) who reported no chronic disease at enrollment were used to investigate the association between HEI-2005-Canada score and development of self-reported chronic disease at follow-up (2008). Participants were divided into HEI-2005-Canada score quartiles. Cox proportional hazards models were used to estimate hazard ratios (HR) and 95% confidence intervals (CI) for cancer and chronic disease incidence. In this cohort, mean HEI-2005-Canada scores for men and women were 50.9 and 55.5 (maximum range 0-100), respectively. In men, higher HEI-2005-Canada score (Q4 vs. Q1) was associated with lower cancer risk (HR (95% CI) 0.63 (0.49-0.83)) over the course of follow-up (mean (SD)=10.4 (2.3) years); the same was not observed in women. In contrast, higher overall HEI-2005-Canada score (Q4 vs. Q1) was associated with lower risk of self-reported chronic disease (0.85 (0.75-0.97)) in both men and women over follow-up (4.2 (2.3) years).

In conclusion, in this cohort better diet quality was associated with a lower risk of cancer in men and lower risk of chronic disease in both sexes. Future studies with longer follow-up and repeated measures of diet may be helpful to elucidate sex-specific associations between dietary quality and disease outcomes.

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KEYWORDS:

Chronic disease; Cohort studies; Diet; Incidence; Neoplasms; Nutrition policy (guidelines)

Probiotics helps IBS

Aliment Pharmacol Ther. 2017 Jun 27. doi:

Systematic review with meta-analysis: the efficacy of probiotics in inflammatory bowel disease.

Derwa Y^{1,2}, Gracie DJ^{1,2}, Hamlin PJ¹, Ford AC^{1,2}.

Abstract**BACKGROUND:**

Ulcerative colitis (UC) and Crohn's disease (CD) are inflammatory bowel diseases (IBD). Evidence implicates disturbances of the gastrointestinal microbiota in their pathogenesis.

AIM:

To perform a systematic review and meta-analysis to examine the efficacy of probiotics in IBD.

METHODS:

MEDLINE, EMBASE, and the Cochrane Controlled Trials Register were searched (until November 2016). Eligible randomised controlled trials (RCTs) recruited adults with UC or CD, and compared probiotics with 5-aminosalicylates (5-ASAs) or placebo. Dichotomous symptom data were pooled to obtain a relative risk (RR) of failure to achieve remission in active IBD, or RR of relapse of disease activity in quiescent IBD, with 95% confidence intervals (CIs).

RESULTS:

The search identified 12 253 citations. Twenty-two RCTs were eligible. There was no benefit of probiotics over placebo in inducing remission in active UC (RR of failure to achieve remission=0.86; 95% CI=0.68-1.08). However, when only trials of VSL#3 were considered there appeared to be a benefit (RR=0.74; 95% CI=0.63-0.87). Probiotics appeared equivalent to 5-ASAs in preventing UC relapse (RR=1.02; 95% CI=0.85-1.23). There was no benefit of probiotics in inducing remission of active CD, in preventing relapse of quiescent CD, or in preventing relapse of CD after surgically induced remission.

CONCLUSIONS:

VSL#3 may be effective in inducing remission in active UC. Probiotics may be as effective as 5-ASAs in preventing relapse of quiescent UC. The efficacy of probiotics in CD remains uncertain, and more evidence from RCTs is required before their utility is known.

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63. PHARMACOLOGY**ADHD Meds may affect bone health****Preliminary Evidence of an Association Between ADHD Medications and Diminished Bone Health in Children and Adolescents.**

Howard JT1, Walick KS, Rivera JC.

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

The US Centers for Disease Control and Prevention estimate that 3.5 million children use psychotropic drugs for attention-deficit hyperactivity disorder (ADHD). With an increase in use of these types of drugs, thorough understanding of their potential side effects on the growing skeleton is needed. The purpose of this study was to determine whether there is an association between use of ADHD medication and diminished bone health.

METHODS:

Three waves of the National Health and Nutrition Examination Survey public-use data set, collected from 2005 through 2010, were compiled for this study (N=5315). Bone health was measured using dual-energy x-ray absorptiometry scans, which were performed for participants aged 8 to 17 years to determine bone mineral density (BMD) for 3 regions: (1) total femur; (2) femoral neck; and (3) lumbar. Use of ADHD medications was determined by self-reported responses to questions regarding prescription drug use, which were answered by either the respondent or the respondent's parent or guardian. Multiple statistical techniques were used to produce estimates of association between ADHD medication use and z score age and sex standardized BMD measures, including survey adjusted univariate, survey adjusted multiple linear regression, and generalized estimating equations with a propensity-matched subsample (N=1967). Multivariate models adjusted for covariates including time period, age, sex, race/ethnicity, family income to poverty ratio, and total number of prescription medications.

RESULTS:

Conservative estimates of the difference in standardized BMD measures between the ADHD medication group and the nonmedicated group range from -0.4855 (± 0.27 ; $P < 0.001$) for total femoral, -0.4671 (± 0.27 ; $P < 0.001$) for femoral neck, and -0.3947 (± 0.29 ; $P < 0.01$) for lumbar. Significantly more children on ADHD medications versus match subjects on no medication had BMDs with in osteopenic range (38.3% vs. 21.6%, $P < 0.01$).

DISCUSSION:

The findings suggest that there are real and nontrivial differences in BMD for children and adolescents taking ADHD medications, as compared with similar children not taking any prescription medications. Prescribing physicians and parents should be aware of potential bone health risks associated with these medications.