

ABSTRACTS

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2. LBP

Menopause and women and men

Increased low back pain prevalence in females than in males after menopause age: Evidences based on synthetic literature review

Quantitative Imaging in Medicine and Surgery, 05/04/2016Yì Xiang J, et al.

This literature review aims to validate or falsify this hypothesis, i.e., while overall females have higher prevalence of low back pain (LBP) across all age groups, this male vs. female difference in LBP prevalence further increases after female menopause age. Compared with young and middle aged subjects, a further increased LBP prevalence in females than in males was noted after menopause age.

- The literature search was performed on PubMed on January 2, 2016.
- The search word combination was (low back pain) AND prevalence AND [(males OR men) AND (females OR women)].
- The following criteria were taken to include the papers for synthetic analysis: (I) only English primary literatures on nonspecific pain; (II) only prospective studies on general population, but not population with occupational LBP causes, of both males and female subjects studied using the same LBP criterion, ages-specific information available, and males and female subjects were age-matched; (III) studies without major quality flaws.
- In total 98 studies with 772,927 subjects were analyzed.
- According to the information in the literature, participant subjects were divided into four age groups: (I) school age children group: 6–19 years; (II) young and middle aged group: 20–50 years; (III) mixed age group: data from studies did not differentiate age groups; (IV) elderly group: ≥ 50 years old.
- When individual studies were not weighted by participant number and each individual study is represented as one entry regardless of their sample size, the median LBP prevalence ratio of female vs. males was 1.310, 1.140, 1.220, and 1.270 respectively for the four age groups.
- When individual studies were weighted by participant number, the LBP prevalence ratio of female vs. males was 1.360, 1.127, 1.185, and 1.280 respectively for the four groups.
- The higher LBP prevalence in school age girls than in school age boys is likely due to psychological factors, female hormone fluctuation, and menstruation.

Climbing good for LBP

Clin J Sport Med. 2016 May;26(3):199-205. doi: 10.1097/JSM.0000000000000238.

Climbing Has a Positive Impact on Low Back Pain: A Prospective Randomized Controlled Trial.

Schinhan M¹, Neubauer B, Pieber K, Gruber M, Kainberger F, Castellucci C, Olischar B, Maruna A, Windhager R, Sabeti-Aschraf M.

Author information

Abstract

OBJECTIVE: Comparison of climbing versus no treatment to treat chronic low back pain.

DESIGN: Prospective randomized controlled trial.

SETTING: Tertiary.

PARTICIPANTS: A total of 30 patients with chronic low back pain were recruited and randomly assigned to 2 different groups: climbing and control. The inclusion criteria were defined as chronic low back pain, age between 18 and 45 years, body mass index lower than 25, and no climbing experience.

INTERVENTIONS: Patients in the climbing group were instructed to climb 5 different climbing routes. A climbing activity of 10 sessions in 8 weeks, at least once a week with a minimum duration of 1 hour, was mandatory.

MAIN OUTCOME MEASURES: The participants were examined before (T0) and after therapy (8 weeks, T8) and after another 6 weeks (T14). The outcome was evaluated using Oswestry Disability Index, Visual Analog Scale (VAS), Likert scale, and magnetic resonance imaging (MRI). Radiologists evaluating MRI were blinded. The study was performed as a single-center study.

RESULTS: Evaluating the Oswestry Disability Index, a significant difference in the time course between the 2 groups was detected ($P = 0.022$). Significant improvements comparing climbing and control group were also found when assessing VAS in a minimal finger-floor-distance position ($P = 0.048$). Patients in the climbing group showed a reduction in size of disc protrusion.

CONCLUSIONS: Climbing may be an effective and low-cost therapy option for people with chronic low back pain.

CLINICAL RELEVANCE: Low back pain is a very common disease but still a challenge to treat. Therapy strategies vary from conservative ones, pharmacological treatment with non-steroidal anti-inflammatory drugs (NSAIDs) and weak opioids, to invasive treatment with acupuncture, injections, and operative reconstruction. Some can be costly and not without risks. For instance, many people who use NSAIDs are at risk of common side effects such as gastrointestinal complications (irritation, ulcers, and bleeding) that may lead to hospitalization. Climbing could offer reduction of pain and better performance in daily life, because it offers a closed chain muscle training that has the potential to improve posture, perception of the trunk midline, and muscle control. Climbing may also lead to a better adherence to continuing treatment than traditional physical therapy and exercise due to a more exciting aspect of the sports activity.

PMID:26247548

Kinesio tape**Kinesio Taping for Chronic Low Back Pain: A Systematic Review**

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Summary**Background**

Chronic low back pain (CLBP) is a prevalent issue that engenders enormous social and economic burdens. Recently, kinesio taping (KT) has become of interest in the management of chronic pain. Accordingly, this is the first systematic review to explicitly report the effects of KT on CLBP.

Objective

The aim of this review was to summarize the results of randomized controlled trials (RCTs) investigating the effects of KT on CLBP.

Methods

A search was performed on the electronic databases PubMed, MEDLINE, SPORT Discus and Science Direct, up to June 17, 2015, using the following keywords: Kinesiology taping, kinesio taping, chronic low back pain.

Results

In total, five studies involving 306 subjects met the inclusion criteria and corresponded to the aim of this review. The methodological quality of the included RCTs was good, with a mean score of 6.6 on the 10-point PEDro Scale. Moderate evidence suggests KT, as a sole treatment or in conjunction with another treatment, is no more effective than conventional physical therapy and exercise with respect to improving pain and disability outcomes. There is insufficient evidence suggesting that KT is superior to sham taping in improving pain and disability. Limited evidence suggests that KT is more effective than sham taping in improving range of motion (ROM) and global perceived effect (GPE) in the short term. Very limited evidence indicates that KT is more effective than conventional physical therapy in improving anticipatory postural control of the transversus abdominus muscles and improved cerebral cortex potential.

Conclusion

Kinesio taping is not a substitute for traditional physical therapy or exercise. Rather, KT may be most effective when used as an adjunctive therapy, perhaps by improving ROM, muscular endurance and motor control. More high quality studies that consider the multiple factors that mediate CLBP, in the short, intermediate and long term, are needed to strengthen the evidence of the effectiveness of KT on CLBP.

Keywords: Chronic low back pain, Kinesio taping, Kinesiology taping

Cognitive and behavioral PT

Can Physical Therapy centred on cognitive and behavioural principles improve Pain Self-Efficacy in symptomatic lumbar isthmic spondylolisthesis? A case series

Silvano Ferrari, PT (Master of Manual Therapy and Musculoskeletal Rehabilitation) Carla Vanti, PT, MSc, OMT (Master of Manual Therapy and Musculoskeletal Rehabilitation) Costa Francesco, MD Fornari Maurizio, MD

Summary

Purpose

Pain-related self-efficacy is defined as “the beliefs held by people with chronic pain that were able to carry out certain activities, even when experiencing pain”, and it is considered a relevant mediator in the relationship between pain and disability in chronic low back pain. This case series describes a treatment aiming to improve pain self-efficacy in patients with symptomatic lumbar spondylolisthesis.

Method

Ten consecutive outpatients with lumbar spondylolisthesis and chronic LBP referred to a rehabilitative clinic participated in this study. Cognitive and behavioural principles were integrated with functional and graded approach in each individual physical therapy program. The outcome measures concerned clinical instability and endurance tests, pain, disability and self-efficacy.

Results

Pain self-efficacy and lumbar function improved in 7 out of 10 patients; clinical tests improved in 9 out of 10 patients.

Conclusion

A rehabilitation program carried out by a physical therapist, centred on cognitive and behavioural principles, appeared useful in improving pain self-efficacy and lumbar function. These results may be interesting for future controlled trials.

Keywords: Chronic low back pain, Physical Therapy Modalities, Exercise Movement Techniques, Exercise therapy, Cognitive-Behavioural Treatment

3. DISC

Schmorl's nods

Osteoarthritis Cartilage. 2016 Apr 30. pii: S1063-4584(16)30059-0. doi: 10.1016/j.joca.2016.04.020.

Classification of Schmorl's Nodes of the Lumbar Spine and Association with Disc Degeneration: a Large-Scale Population-Based MRI Study.

Samartzis D¹, Mok FP², Karppinen J³, Fong DY⁴, Luk KD², Cheung KM⁵.
Author information

Abstract

OBJECTIVE:

Schmorl's nodes (SN) are highly associated with lumbar disc degeneration. However, SN present with different morphologies/topographies that may be associated with varying degrees of disc degeneration. This study proposed a classification of SN to determine their morphological/topographical prevalence and association with the severity of disc degeneration.

METHODS:

Sagittal T2-weighted MRIs were assessed to identify SN and additional imaging findings from L1-S1 in 2,449 individuals. SN characteristics were classified by 6 criteria: disc level; endplate involvement; shape; size; location of endplate zone; and the presence of marrow changes. Hierarchical clustering was performed to identify distinct SN characteristics with endplate patterns.

RESULTS:

Good to excellent observer classification reliability was noted. SN most commonly presented at the L1 and L2 disc levels, and entailed one-third of the endplate, predominantly the middle zone. Round shape (39.2%) was the most common SN shape. Four specific SN and endplate linkage patterns were identified. 8.3% of identified SN (n=960) were "Atypical SN". Multivariable regression showed that "Typical SN" and "Atypical SN", depending on levels, were associated with an adjusted 2- to 4-fold and a 5- to 13-fold higher risk of increased severity of disc degeneration, respectively (p < 0.05).

CONCLUSIONS:

This is the first large-scale MRI study to propose a novel SN classification. Specific SN-types were identified, which were associated with more severe disc degeneration. This study further broadens our understanding of the role of SN and degrees of disc degeneration, further expanding on the SN phenotyping that can be internationally adopted for utility assessment.

KEYWORDS: MRI; Schmorl's; classification; degeneration; disc; endplate; nodes
PMID: 27143364

5. SURGERY

Fusion and spodylo

Eur Spine J. 2016 Apr 22.

Can facet joint fluid on MRI and dynamic instability be a predictor of improvement in back pain following lumbar fusion for degenerative spondylolisthesis?

Snoddy MC¹, Sielatycki JA¹, Sivaganesan A², Engstrom SM¹, McGirt MJ³, Devin CJ^{4,5}.
Author information

Abstract

PURPOSE:

To investigate the relationship between lumbar facet fluid and dynamic instability in degenerative spondylolisthesis (DS), as well as the relationship between facet fluid and patient-reported outcomes following a posterior lumbar fusion.

METHODS:

We analyzed consecutive patients with degenerative spondylolisthesis undergoing single level posterior lumbar fusion from December 2010 to January 2013 at a single academic institution. We investigated the relationship between fluid in the facet joint as measured on axial MRI and the presence of dynamic instability. We investigated the impact of facet fluid, Modic changes, and dynamic instability on patient-reported outcomes.

RESULTS:

There was a significant association between the amount of facet joint fluid and the presence of dynamic instability ($p = 0.03$); as facet fluid increases, the probability of dynamic instability also increases. For every 1 mm of facet fluid, there was a 41.6 % increase (95 % CI 1.8-97) in the odds of dynamic instability. A facet fluid amount less than 0.5 mm gave a 90 % probability that there was no dynamic instability. The presence of facet fluid and dynamic instability were associated with achieving minimal clinical important difference (MCID) in low back pain following lumbar fusion ($p = 0.04$ and 0.05 , respectively).

CONCLUSION:

Facet joint fluid is associated with the presence of dynamic instability in DS. The presence of facet fluid and dynamic instability may predict increased likelihood of achieving MCID for improvement in back pain following posterior lumbar fusion.

KEYWORDS:

Back pain; Degenerative spondylolisthesis; Dynamic instability; Facet joint fluid; Magnetic resonance imaging; Patient-reported outcomes

PMID: 27106489

Fusion and driving abstinence

Int Orthop. 2016 Apr 22.

Driving abstinence is necessary after lumbar spinal fusion: a prospective cohort study.

Liebensteiner MC¹, Birkfellner F², Deibl M³, Haid C¹, Krismer M¹, Dammerer D⁴.
Author information

Abstract

PURPOSE: Studies on driving safety after lumbar spinal procedures are rare. Previous studies solely reported on a) driving reaction time (DRT) after lumbar nerve root blocks, b) DRT after discectomy and c) preliminary DRT findings after lumbar fusion.

METHODS: DRT was assessed with a driving simulator as described before. Measurements were done one day before surgery (preop DRT), one week after surgery (postop1 DRT), three months (postop2 DRT) and one year postoperatively (postop3 DRT). Back pain was determined with visual analogue scales (VAS) on all four occasions. Additionally, we monitored each patient's pre-operative driving frequency and intake of analgesics. For statistical analysis we used an ANOVA for repeated measurements.

RESULTS: Thirt eight of 51 patients completed all measurements (17 monosegmental fusion, 14 polysegmental fusion, seven other lumbar fusion procedures). The longitudinal changes in DRT showed overall significance ($p = 0.013$). Post-hoc tests determined $p = 0.035$ for the DRT-increase from pre- to postoperative. We did not determine a significant statistical effect for the type of surgery ($p = 0.581$) or patient age ($p = 0.134$). A tendency towards statistical significance was ascertained for the influence of patients' driving frequency on DRT ($p = 0.051$).

CONCLUSIONS: We found increased DRT at the time of discharge after lumbar spinal fusion and therefore recommend driving abstinence for the time thereafter. Based on our findings it appears safe to return to driving at 3 months postoperative.

KEYWORDS: Brake response time; Driving ability; Driving reaction; Driving safety; Lower back pain; Lumbar fusion

PMID: 27102606

Fusion and stiffness

Spine (Phila Pa 1976). 2016 Apr;41(8):719-27. doi: 10.1097/BRS.0000000000001300.

Effects of Lumbar Stiffness After Lumbar Fusion Surgery on Activities of Daily Living.

Kimura H¹, Fujibayashi S, Otsuki B, Takahashi Y, Nakayama T, Matsuda S.
Author information

Abstract

STUDY DESIGN:

A retrospective cohort study.

OBJECTIVE:

The aim of this study was to assess the effects of lumbar stiffness after lumbar fusion surgery on functional limitations, health-related quality of life, and activities of daily living (ADL).

SUMMARY OF BACKGROUND DATA:

Postoperative outcomes after fusion surgery are usually assessed using patient-reported instruments to describe disability related to pain and health status. There are few studies on the effects of lumbar stiffness on ADL after lumbar fusion surgery.

METHODS:

This study included 93 patients who underwent lumbar fusion surgery for degenerative lumbar disease. Their mean age was 69 years (range 51-79), and the mean follow-up was 34 months (24-46). The patients were categorized into 5 groups according to the number of segments involved: 0 level (decompression), 1 level, 2 levels, 3 levels, and 4 levels. They completed a 21-item questionnaire about their ADL and the Short Form Health Survey 36 (SF-36) to evaluate the effects of lumbar stiffness on ADL after surgery.

RESULTS:

There was a linear trend toward a decreased rating in all items in our questionnaire and in the physical component summary in the SF-36 related to postoperative lumbar stiffness. These trends were significantly related to the number of fused segments ($P < 0.05$ and $P < 0.001$, respectively). Patient satisfaction did not differ between the groups ($P = 0.381$). Patients who received a 1- or 2-level fusion reported no serious limitations in most ADL. Patients who received a 3- or 4-level fusion, especially 4-level fusion, reported more limitations because of postoperative lumbar stiffness.

CONCLUSION:

This study investigated in detail the effects of lumbar stiffness after fusion surgery on ADL. Spine surgeons should consider the patient's occupation and lifestyle in preoperative planning. These results will help the surgeon explain the possible outcomes to patients planning to undergo fusion surgery.

LEVEL OF EVIDENCE: 2.

PMID: 26630422

7. PELVIC ORGANS/WOMAN'S HEALTH

Acupuncture and conception

The role of an acupuncture protocol in improving women's reproductive functioning assessed by a pilot pragmatic randomised controlled trial

Evidence-based Complementary and Alternative Medicine , 05/04/2016Cochrane S, et al.

This study asked whether providing a multiphasic fertility acupuncture protocol to women with sub/infertility would increase their awareness of fertility and achieve normalisation of their menstrual cycle compared with a lifestyle control. The acupuncture protocol tested influenced women who received it compared to women who used lifestyle modification alone: their fertility awareness and wellbeing increased, and those who conceived did so in half the time.

Methods

- In a pragmatic randomised controlled trial sub/infertile women were offered an intervention of acupuncture and lifestyle modification or lifestyle modification only.

Results

- There was a statistically significant increase in fertility awareness in the acupuncture group (86.4%, 19) compared to 40% (n=8) of the lifestyle only participants (Relative Risk (RR) 2.38, 95% confidence interval (CI) of 1.25, 4.50), with an adjusted value of 0.011.
- Changes in menstrual regularity were not statistically significant.
- There was no statistical difference in the pregnancy rate with seven women (adjusted p=0.992) achieving pregnancy during the course of the study intervention.
- Those receiving the acupuncture conceived within an average of 5.5 weeks compared to 10.67 weeks for the lifestyle only group (p=0.422)

Birth defects

Use of personal care products during pregnancy linked to adverse effects in newborns

SUNY Downstate Medical Center News, 05/06/2016

A study led by SUNY Downstate Medical Center's School of Public Health presents evidence linking personal care products used during pregnancy to adverse reproductive effects in newborns. "The study found a link between women with higher levels of butyl paraben, which is commonly used as a preservative in cosmetics, and the following birth outcomes: shorter gestational age at birth, decreased birth weight, and increased odds of preterm birth," says Laura Geer, PhD, MHS, associate professor in the Department of Environmental and Occupational Health Sciences in the School of Public Health at SUNY Downstate.

The antimicrobial compound, triclocarban, mainly added to soaps, was associated with shorter gestational age at birth. Another common chemical added to lotions and creams, propyl paraben, was associated with decreased body length at birth. The long-term consequences of this are not clear, and, Geer adds, "Findings must be reproduced in larger studies." The study was a collaboration with SUNY Downstate's Department of Obstetrics and Gynecology, and the Center for Environmental Security at Arizona State University's Biodesign Institute, directed by professor Rolf Halden, PhD, a noted expert in the study of antimicrobial chemicals. The findings are available online and will be published in a Special Issue "Emerging Contaminants" in the *Journal of Hazardous Materials*.

8. VISCERA

Prostrate hyperplasia

Eur Urol. 2015 Dec 24. pii: S0302-2838(15)01210-5. doi: 10.1016/j.eururo.2015.12.002.

Does Prostate Size Predict the Development of Incident Lower Urinary Tract Symptoms in Men with Mild to No Current Symptoms? Results from the REDUCE Trial.

Simon RM¹, Howard LE², Moreira DM³, Roehrborn C⁴, Vidal AC⁵, Castro-Santamaria R⁶, Freedland SJ⁷.

Author information

Abstract

BACKGROUND: It has been shown that increased prostate size is a risk factor for lower urinary tract symptom (LUTS) progression in men who currently have LUTS presumed due to benign prostatic hyperplasia (BPH).

OBJECTIVE: To determine if prostate size is a risk factor for incident LUTS in men with mild to no symptoms.

DESIGN, SETTING, AND PARTICIPANTS: We conducted a post hoc analysis of the REDUCE study, which contained a substantial number of men (n=3090) with mild to no LUTS (International Prostate Symptom Score [IPSS] <8).

OUTCOME MEASUREMENTS AND STATISTICAL ANALYSIS: Our primary outcome was determination of the effect of prostate size on incident LUTS presumed due to BPH defined as two consecutive IPSS values >14, or receiving any medical (α -blockers) or surgical treatment for BPH throughout the study course. To determine the risk of developing incident LUTS, we used univariable and multivariable Cox models, as well as Kaplan-Meier curves and the log-rank test.

RESULTS AND LIMITATIONS: Among men treated with placebo during the REDUCE study, those with a prostate size of 40.1-80ml had a 67% higher risk (hazard risk 1.67, 95% confidence interval 1.23-2.26, p=0.001) of developing incident LUTS compared to men with a prostate size 40.0ml or smaller. There was no association between prostate size and risk of incident LUTS in men treated with 0.5mg of dutasteride. The post hoc nature of our study design is a potential limitation.

CONCLUSIONS: Men with mild to no LUTS but increased prostate size are at higher risk of incident LUTS presumed due to BPH. This association was negated by dutasteride treatment.

PATIENT SUMMARY: Benign prostatic hyperplasia (BPH) is a very common problem among older men, which often manifests as lower urinary tract symptoms (LUTS), and can lead to potentially serious side effects. In our study we determined that men with mild to no current LUTS but increased prostate size are much more likely to develop LUTS presumed due to BPH in the future. This association was not seen in men treated with dutasteride, a drug approved for treatment of BPH. Our study reveals that men with a prostate size of 40.1-80ml are potential candidates for closer follow-up.

KEYWORDS: Lower urinary tract symptoms; Prostate; Prostatic hyperplasia; Treatment
PMID: 26724841

IBS and depression

Aliment Pharmacol Ther. 2016 May 4. doi: 10.1111/apt.13645.

Systematic review: psychological morbidity in young people with inflammatory bowel disease - risk factors and impacts.

Brooks AJ¹, Rowse G², Ryder A², Peach EJ², Corfe BM³, Lobo AJ¹.
Author information

Abstract

BACKGROUND:

Psychological morbidity in young people aged 10-24 years, with inflammatory bowel disease (IBD) is increased, but risk factors for and impacts of this are unclear.

AIM:

To undertake a systematic literature review of the risk factors for and impact of psychological morbidity in young people with IBD.

METHODS:

Electronic searches for English-language articles were performed with keywords relating to psychological morbidity according to DSM-IV and subsequent criteria; young people; and IBD in the MEDLINE, PsychInfo, Web of Science and CINAHL databases for studies published from 1994 to September 2014.

RESULTS:

One thousand four hundred and forty-four studies were identified, of which 30 met the inclusion criteria. The majority measured depression and anxiety symptoms, with a small proportion examining externalising behaviours. Identifiable risk factors for psychological morbidity included: increased disease severity ($r^2 = 0.152$, $P < 0.001$), lower socioeconomic status ($r^2 = 0.046$, $P < 0.001$), corticosteroids ($P \leq 0.001$), parental stress ($r = 0.35$, $P < 0.001$) and older age at diagnosis ($r = 0.28$, $P = 0.0006$). Impacts of psychological morbidity in young people with IBD were wide-ranging and included abdominal pain ($r = 0.33$; $P < 0.001$), sleep dysfunction ($P < 0.05$), psychotropic drug use (HR 4.16, 95% CI 2.76-6.27), non-adherence to medication (12.6% reduction) and negative illness perceptions ($r = -0.43$).

CONCLUSIONS:

Psychological morbidity affects young people with IBD in a range of ways, highlighting the need for psychological interventions to improve outcomes. Identified risk factors provide an opportunity to develop targeted therapies for a vulnerable group. Further research is required to examine groups under-represented in this review, such as those with severe IBD and those from ethnic minorities.

PMID: 27145394

Probiotics

Dig Dis. 2016;34(3):251-9. doi: 10.1159/000443359. Epub 2016 Mar 30.

Probiotic Bacterial and Fungal Strains: Claims with Evidence.

Szajewska H¹, Konarska Z, Kołodziej M.
Author information

Abstract

BACKGROUND:

Probiotics are live microorganisms that, when administered in adequate amounts, confer a health benefit for the host. This review summarizes current (i.e. published in the last 5 years) key evidence on probiotic efficacy and its safety in adults and children. To identify relevant data, searches of MEDLINE and the Cochrane Library databases were performed in August 2015 to locate randomized controlled trials (RCTs) or their meta-analyses. The focus was on commonly used, well-specified, bacterial and yeast probiotics for the treatment of gastrointestinal disorders. The MEDLINE database was also searched for evidence-based clinical practice guidelines, developed by scientific societies in the same timeframe. Data on safety of probiotics were obtained from a document developed by the US Agency for Healthcare Research and Quality.

KEY MESSAGES:

A number of relevant RCTs and meta-analyses are available. *Saccharomyces boulardii* is the most studied yeast probiotic, and *Lactobacillus rhamnosus* GG is the most studied bacterial probiotic. For both, the best documented fact is their efficacy for the treatment of acute gastroenteritis, especially in children, and for the prevention of antibiotic-associated diarrhea, both in adults and children. There is some evidence to support the use of probiotics to prevent or treat other diseases, such as necrotizing enterocolitis, infantile colic, *Helicobacter pylori* infection, and irritable bowel syndrome, but further studies are needed to identify which strain(s) is/are the most effective. Data on safety, particularly long-term safety, are limited. The risk of side effects is greater in people who have severe underlying health conditions.

CONCLUSIONS:

The evidence on bacterial and yeast probiotics has considerably expanded during recent years. Accumulated data allow one to make informed decisions about the effectiveness of probiotics and about how to reduce the use of those without proven efficacy.

PMID: 27028756

Vocal treatment

J Voice. 2016 Apr 25. pii: S0892-1997(16)00061-8. doi: 10.1016/j.jvoice.2016.02.020.

Phonetic Approaches of Laryngopharyngeal Reflux Disease: A Prospective Study.

Lechien JR¹, Delvaux V², Huet K², Khalife M³, Fourneau AF³, Piccaluga M², Harmegnies B², Saussez S⁴.

Author information

Abstract

OBJECTIVES:

The study aimed to explore the impact of the selection of the analyzed time interval on the significance of acoustic measurements used to investigate laryngopharyngeal reflux (LPR) treatment efficacy, and based on these results to develop an alternative statistical approach in data analysis focusing on individual patient vocal behavior.

STUDY DESIGN:

This is a prospective case series.

METHODS:

From September 2013 to July 2015, 41 patients with a reflux finding score (RFS) > 7 and a reflux symptom index (RSI) > 13 were enrolled and treated with pantoprazole 20 mg twice daily and diet behavioral changes for 3 months. Voice recordings were performed at baseline and after 3 months of treatment. Most stable time intervals of 1, 2, 3, 4, and 5 seconds, and a 1-second time interval positioned at mid-production, were subjected to acoustic analysis. Based on the latter, we developed an "informativeness coefficient" for each acoustic parameter that aimed at assessing its sensitivity to clinical resolution in the case of LPR disease.

RESULTS:

Significant clinical improvement (RSI and RFS) was observed after treatment ($P < 0.05$). The acoustic analysis revealed that acoustic parameters significantly improving from pre- to posttreatment varied across time intervals. The duration and the position of the analyzed time interval in the production yielded considerable differences in the results. Analysis of the informativeness coefficient indicated that jitter, jitter percent, relative average perturbation (RAP), pitch perturbation quotient (PPQ), shimmer (ShdB), shimmer percent (Shim), amplitude perturbation quotient (APQ), and smoothed amplitude perturbation quotient (sAPQ) were the indices most sensitive to medical treatment efficacy, with a coefficient ranging from 75.86% to 86.21%.

CONCLUSIONS:

Depending on the selection of the time interval over which the acoustic parameters are measured, the potential effect of the treatment may or may not be statistically demonstrated. Future studies are needed to establish standardized methodological procedures for acoustic data analysis.

KEYWORDS: acoustic; hoarseness; laryngopharyngeal reflux; reflux laryngitis; voice

PMID: 27133614

Gluten adherence

Systematic review with meta-analysis: Dietary adherence influences normalization of health-related quality of life in coeliac disease

Clinical Nutrition, 05/03/2016 Burger JPW, et al.

The authors performed a systematic review and meta-analysis to assess the effect of gluten-free diet on HRQoL in coeliac disease. They specifically sought for determinants that negatively influenced health-related quality of life (HRQoL). Gluten-free diet significantly improves but does not normalize HRQoL in adults with coeliac disease. Dietary adherence improves HRQoL. Better (self-reported) dietary adherence results in higher HRQoL.

Methods

- The authors systematically searched PubMed, EMBASE, CINAHL, PsycINFO and Cochrane Library for studies assessing HRQoL in untreated or treated adults using validated HRQoL-questionnaires from 1960 to September 2015, comparing HRQoL:
 - Before and after gluten-free diet initiation
 - In patients and non-coeliac controls.

Results

- The authors included eighteen studies and sixteen were suitable for meta-analysis.
- Gluten-free diet significantly improves HRQoL, for psychological general well-being (PGWB)-Total (mean difference (MD) 7.34, 95% confidence interval (CI) [1.96; 12.72]; $p = 0.008$), SF-36 Mental Component Score (MCS) (MD 7.37, 95% CI [1.84; 12.90]; $p = 0.009$) and SF-36 Physical Component Score (PCS) (MD 5.72, 95% CI [1.50; 9.95]; $p = 0.008$).
- Treated patients had similar HRQoL compared with controls for PGWB-Total (MD -0.72, 95% CI [-2.71; 1.27]; $p = 0.48$), but significantly lower levels for SF-36 MCS (MD -4.09, 95% CI [-6.17; -2.01]; $p = 0.0001$) and PCS (MD -4.57, 95% CI [-6.97; -2.17]; $p = 0.0002$).
- Symptom-detected gluten-free diet adhering patients have lower HRQoL compared with screening-detected patients (MD -3.73, 95% CI [-6.77; -0.69]; $p = 0.02$) Strict adhering patients have better HRQoL compared with non-strict adhering patients for SF-36 MCS (MD 7.70, 95% CI [4.61; 10.79]; $p < 0.00001$) and for SF-36 PCS (MD 3.23, 95% CI [1.33; 5.14]; $p = 0.0009$)

Pelvic pain

J Urol. 2016 Apr 27. pii: S0022-5347(16)30310-X. doi: 10.1016/j.juro.2016.04.070.

Symptom Variability and Early Symptom Regression in the MAPP Study, a Prospective Study of Urologic Chronic Pelvic Pain Syndrome.

Stephens-Shields AJ¹, Clemens JQ², Jemielita T¹, Farrar J¹, Sutcliffe S³, Hou X⁴, Landis JR¹; MAPP Research Network.

Author information

Abstract

INTRODUCTION:

We examine symptom variability in men and women with urological chronic pelvic pain syndrome (UCPPS). We describe symptom fluctuations as related to early symptom regression and its effect on estimated one-year symptom change. We then describe a method to quantify patient-specific symptom variability.

METHODS:

Symptoms were assessed biweekly in 424 UCPPS subjects over one year. Subjects were classified as 'improved', 'no change', or 'worse' according to their rate of change using 1) all data, 2) excluding week 0, and 3) excluding weeks 0 and 2 to evaluate the impact of early symptom regression. Patient-specific time-varying variability was calculated at each interval using a sliding window approach. Patients were classified as high, medium, or low variability at each time and ultimately as high or low variability overall based on their variability for the majority of contacts.

RESULTS:

Prior to excluding early weeks to adjust for early symptom regression 25-38% and 5-6% of patients were classified as improved and worse, respectively; after adjustment the percentage of patients improved or worse ranged from 15-25% and 6-9%. 'High and 'low' variability phenotypes were each identified in 25-30% of participants.

CONCLUSIONS:

Patients with UCPPS exhibit symptom variability. At enrollment, patients had, on average, worse symptoms, resulting in a regression effect that influenced the estimated proportion of improved or worse subjects. Prospective studies should include a run-in to account for regression to the mean and other causes of early symptom regression. Further, symptom variability may be quantified and used to characterize longitudinal UCPPS symptom profiles.

PMID: 27131464

9. THORACIC SPINE

Greater % of Mid back pain in adolescents

Eur J Pain. 2016 May 5. doi: 10.1002/ejp.884.

Incidence and prognosis of mid-back pain in the general population: A systematic review.

Johansson MS¹, Jensen Stochkendahl M², Hartvigsen J^{1,2}, Boyle E^{1,3}, Cassidy JD^{1,3,4}.

Author information

Abstract

BACKGROUND AND OBJECTIVE:

Despite being common early in life and affecting individuals' quality of life to the same degree as neck and low back pain, research into epidemiological aspects of mid-back pain (MBP) has been scarce. The purpose of our systematic review was therefore to describe the incidence and prognosis of MBP in the general population. The PRISMA Statement guided the study process.

DATABASES:

A systematic search was conducted in CINAHL, PEDro, PsycINFO and Scopus.

RESULTS:

Of 3194 unique records identified, seven were included in our qualitative synthesis. The 3-month and 2-year incidence proportions of MBP in children and adolescents were approximately 4% and 50%, respectively. In adults, the 1-month incidence proportion was less than 1%. The persistence or recurrence of MBP over a 1- to 4-year period was between 13% and 45% in children and adolescents; a change in spinal pain location over time was common. Individuals reporting MBP have an increased risk of future care seeking compared with people without musculoskeletal complaints. No studies assessing adult MBP recovery trajectories or prognostic factors were identified.

CONCLUSIONS:

Knowledge about the incidence and prognosis of MBP in the general population is limited. The incidence of MBP in children and adolescents seems to be similar to the incidence of neck and low back pain; in adults, it is lower than that of neck and low back pain. Studies investigating recovery trajectories of MBP in adults and prognostic factors for MBP are lacking. **WHAT DOES THIS STUDY ADD?:** The incidence of mid-back pain (MBP) in young individuals is similar to that of neck and low back pain, and $\leq 50\%$ report persistent pain; however, the evidence base is limited. Knowledge about adult trajectories and prognostic factors for MBP is lacking.

PMID:27146481

12 B. CERVICAL SURGERIES

Alignment

Eur Spine J. 2016 Apr 13.

A comparative analysis of the prevalence and characteristics of cervical malalignment in adults presenting with thoracolumbar spine deformity based on variations in treatment approach over 2 years.

Jalai CM¹, Passias PG², Lafage V³, Smith JS⁴, Lafage R³, Poorman GW¹, Diebo B³, Liabaud B³, Neuman BJ⁵, Scheer JK⁶, Shaffrey CI⁴, Bess S¹, Schwab F³, Ames CP⁷; International Spine Study Group (ISSG).

Author information

Abstract

PURPOSE: Characteristics specific to cervical deformity (CD) concomitant with adult thoracolumbar deformity (TLD) remains uncertain, particularly regarding treatment. This study identifies cervical malalignment prevalence following surgical and conservative TLD treatment through 2 years.

METHODS: Retrospective analysis of a prospective, multicenter adult spinal deformity (ASD) database. CD was defined in operative and non-operative ASD patients according to the following criteria: T1 Slope minus Cervical Lordosis (T1S-CL) $\geq 20^\circ$, C2-C7 Cervical Sagittal Vertical Axis (cSVA) ≥ 40 mm, C2-C7 kyphosis $> 10^\circ$. Differences in rates, demographics, health-related quality of life (HRQoL) scores for Oswestry Disability Index (ODI) and Scoliosis Research Society Questionnaire (SRS-22r), and radiographic variables were assessed between treatment groups (Op vs. Non-Op) and follow-up periods (baseline, 1-year, 2-year).

RESULTS: Three hundred and nineteen (200 Op, 199 Non-Op) ASD patients were analyzed. Op patients' CD rates at 1 and 2 years were 78.9, and 63.0 %, respectively. Non-Op CD rates were 21.1 and 37.0 % at 1 and 2 years, respectively. T1S-CL mismatch and cSVA malalignment characterized Op CD at 1 and 2 years ($p < 0.05$). Op and Non-Op CD groups had similar cervical/global alignment at 1 year ($p > 0.05$ for all), but at 2 years, Op CD patients had worse thoracic kyphosis (TK), T1S-CL, CL, cSVA, C2-T3 SVA, and global SVA compared to Non-Ops ($p < 0.05$). Op CD patients had worse ODI, and SRS Activity at 1 and 2 years post-operative ($p < 0.05$), but had greater 2-year SRS Satisfaction scores ($p = 0.019$).

CONCLUSIONS: In the first study to compare cervical malalignment at extended follow-up between ASD treatments, CD rates rose overall through 2 years. TLD surgery, resulting in higher CD rates characterized by T1S-CL and cSVA malalignment, produced poorer HRQoL. This information can aid in treatment method decision-making when cervical deformity is present concomitant with TLD.

KEYWORDS: Adult spinal deformity; Cervical deformity; Cervical spine malalignment; Health-related quality of life; Thoracolumbar deformity

PMID: 27076049

Replacements improved results

Int Orthop. 2016 Apr 8.

Cervical disc replacement - emerging equivalency to anterior cervical discectomy and fusion.

Buckland AJ¹, Baker JF², Roach RP¹, Spivak JM¹.
Author information

Abstract

PURPOSE:

Cervical disc replacement has become an acceptable alternative to anterior cervical fusion for the surgical treatment of cervical spine spondylosis resulting in radiculopathy or myelopathy following anterior discectomy and decompression. This concise overview considers the current state of knowledge regarding the continued debate of the role of cervical disc replacement with an update in light of the latest clinical trial results.

METHODS:

A literature review was performed identifying clinical trials pertaining to the use of cervical disc replacement compared to cervical discectomy and fusion. Single level disease and two level disease were considered. Outcome data from the major clinical trials was reviewed and salient points identified.

RESULTS:

With lengthier follow-up data becoming available, the equivalence of CDR in appropriately selected cases is becoming clear. This is chiefly manifested by reduced re-operation rates and reduced incidence of adjacent level disease in those treated with arthroplasty.

CONCLUSION:

Cervical disc replacement shows emerging equivalence in outcomes compared to the gold standard anterior cervical discectomy and fusion. Further longer term results are anticipated to confirm this trend.

KEYWORDS: Anterior cervical discectomy and fusion; Cervical disc arthroplasty; Cervical disc replacement
PMID: 27055447

13. CRANIUM/TMJ

Fluoride

Caries Res. 2016;50 Suppl 1:22-37. doi: 10.1159/000439059. Epub 2016 Apr 22.

Enhancing Fluoride: Clinical Human Studies of Alternatives or Boosters for Caries Management. **Fontana M¹.**

Author information

Abstract

Dental caries remains a major public health problem, especially for certain high-risk population groups.

The goal of this study was to assess the evidence regarding strategies meant to be used as alternatives or booster/supplements to fluoride for caries prevention and management. Articles were selected for inclusion if they had a prospective longitudinal design, with a fluoride control arm, and were conducted in human subjects. Of the included studies, 7/18 studies on calcium-based strategies favored the test product (the majority of studies included exposure of fluoride in all groups). All the arginine studies (8/8) included a combination of arginine and a calcium base, and concluded that this has the potential to significantly boost the performance of fluoride. The remaining included studies focused on the addition of microbial-related strategies to a fluoride-containing vehicle (2 xylitol studies and 1 study using a probiotic milk), and all favored the combination as a booster to fluoride. Thus, the current study did not identify evidence for any strategy to effectively be used as a substitute or alternative to fluoride, but identified some consistent evidence derived from the use of prebiotic strategies (primarily from use of arginine combined with calcium) to support their potential use to boost the mechanism of action of fluoride.

Thus, fluoride-based strategies remain the standard for caries prevention and management, with some evidence that boosting the effects of fluoride by the use of prebiotic strategies is a promising possibility.

PMID: 27100833

Measuring arthrorcentesis

Br J Oral Maxillofac Surg. 2016 Apr 22. pii: S0266-4356(16)30024-9. doi: 10.1016/j.bjoms.2016.04.004.

Comparison of ultrasound-guided and conventional arthrocentesis of the temporomandibular joint.

Sivri MB¹, Ozkan Y¹, Pekiner FN², Gocmen G³.

Author information

Abstract

Arthrocentesis of the temporomandibular joint (TMJ) can be done either conventionally or under ultrasonographic guidance, and we have compared the effectiveness of the two techniques. Twenty patients who required arthrocentesis of the TMJ were randomly assigned to ultrasonographically guided (US-guided) and conservative arthrocentesis (n=10 in each group). The number of relocations of the first and second punctures, pain experienced during each procedure measured using a visual analogue scale (VAS), and the duration of the procedure were the main outcome variables. The pain score compared with the maximal interincisal mouth opening measured preoperatively, immediately after operation, at 1 week, and 1 and 3 months, were secondary outcome variables. No patient in either group developed a complication, and there was no significant difference between the two groups, except that US-guided arthrocentesis took significantly longer than the conventional technique (p=0.000). US-guided arthrocentesis of the TMJ was no more successful than the conventional technique, and took longer. Further studies with more patients are required to validate these findings.

KEYWORDS: Arthrocentesis; Temporomandibular joint; Ultrasonography
PMID: 27118616

14. HEADACHES**Posture and HA's**

J Orthop Sports Phys Ther. 2016 Apr;46(4):251-7. doi: 10.2519/jospt.2016.6166. Epub 2016 Mar 8.

Cervico-occipital Posture in Women With Migraine: A Case-Control Study.

Ferracini GN, Dach F, Chaves TC, Pinheiro CF, Bevilaqua-Grossi D, Fernández-de-Las-Peñas C, Speciali JG.

Abstract

Study Design Case-control study.

Background Previous studies have assessed forward head posture in patients with migraine using photographs. To date, no study has compared postural differences using both radiographs and photographs.

Objective To determine the differences in head extension posture between women with migraine and healthy women assessed with radiographic and photographic measures.

Methods Thirty-three women (mean \pm SD age, 32 ± 11.3 years) with migraine and 33 matched controls (age, 33 ± 12.6 years) participated. Radiographs were used to measure the high cervical angle (HCA), the angle between the most inferior line from the occipital surface to the posterior portion of C1 and the posterior surface of the odontoid process of C2, and the vertical distance between C0 and C1 (C0-C1). Photographs and commercially available software were used to assess the craniovertebral angle (CVA).

Results None of the outcomes differed significantly between women with migraine and control participants. Outcomes for women with migraine were HCA, 66.1° (95% confidence interval [CI]: 64.2° , 68.1°); CVA, 46.1° (95% CI: 45.0° , 47.1°); and C0-C1, 8.5 mm (95% CI: 7.7, 9.2). Outcomes for the control group were HCA, 67.9° (95% CI: 66.5° , 69.3°); CVA, 44.5° (95% CI: 43.2° , 45.7°); and C0-C1, 8.7 mm (95% CI: 7.9, 9.4). Relationships between the frequency ($r = -0.42$, $P = .01$, $R(2) = 10\%$) of migraine and the HCA were found.

Conclusion This study demonstrated that women with migraine did not exhibit forward head posture compared to women with no history of headache in either radiographic or photographic postural analysis. However, there was a weak association of the frequency of migraine attacks with a variation in the HCA as assessed by radiographs. Level of Evidence Differential diagnosis/symptom prevalence, level 4. J Orthop Sports Phys Ther 2016;46(4):251-257. Epub 8 Mar 2016. doi:10.2519/jospt.2016.6166.

KEYWORDS: headache; photography; posture; radiography
PMID: 26954270

15. VESTIBULAR**Vestibular migraine**

Cephalalgia. 2016 Apr 29. pii: 0333102416646755.

Descriptions of vestibular migraine and Menière's disease in Greek and Chinese antiquity.

Huppert D¹, Brandt T².
Author information

Abstract

BACKGROUND:

Vestibular migraine and Menière's disease are two types of episodic vertigo syndromes that were already observed in Greek and Chinese antiquity. Descriptions first appeared in the work of the classical Greek physician Aretaeus of Cappadocia, who lived in the 2nd century AD, and in Huangdi Neijing, a seminal medical source in the Chinese Medical Classics, written between the 2nd century BC and the 2nd century AD.

AIM:

The aim of this paper is to search in Aretaeus' book *De causis et signis acutorum et chronicorum morborum* and in Huangdi Neijing for descriptions of vertigo co-occurring with headache or ear symptoms that resemble current classifications of vestibular migraine or Menière's disease.

RESULTS:

Aretaeus describes a syndrome combining headache, vertigo, visual disturbance, oculomotor phenomena, and nausea that resembles the symptoms of vestibular migraine. In the Chinese book Huangdi Neijing the Yellow Thearch mentions the co-occurrence of episodic dizziness and a ringing noise of the ears that recalls an attack of Menière's disease.

CONCLUSIONS:

The descriptions of these two conditions in Greek and Chinese antiquity are similar to the vertigo syndromes currently classified as vestibular migraine and Menière's disease. In clinical practice it may be difficult to clearly differentiate between them, and they may also co-occur.

KEYWORDS: Aretaeus of Cappadocia; Chinese antiquity; Greek antiquity; Menière's disease; Vestibular migraine; Yellow Thearch; headache; vertigo
PMID: 27129480

19. GLENOHUMERAL/SHOULDER**OA changes in mechanics**

J Shoulder Elbow Surg. 2016 Apr 18. pii: S1058-2746(16)00143-9. doi: 10.1016/j.jse.2016.02.035.

A three-dimensional comparative study on the scapulohumeral relationship in normal and osteoarthritic shoulders.

Jacxsens M¹, Van Tongel A², Henninger HB³, De Coninck B⁴, Mueller AM⁵, De Wilde L².
Author information

Abstract

BACKGROUND:

Eccentric loading due to humeral translation is associated with worse clinical outcomes in hemiarthroplasty and total shoulder arthroplasty. The purpose of this study was to evaluate the 3-dimensional relationship of the humeral head to the scapula (scapulohumeral relationship) in nonpathologic shoulders and in shoulders with primary osteoarthritis.

MATERIALS AND METHODS:

Three-dimensional reconstructions of computed tomography scans of 151 nonpathologic shoulders (control group) and 110 shoulders with primary glenohumeral arthritis (OA group) were analyzed by measuring the anterior-posterior, inferior-superior, and medial-lateral position of the humeral head in relation to the scapula. Shoulders were classified as centered (type A) or posteriorly subluxed (type B) according to the Walch classification of glenoid morphology. Reproducibility and differences in scapulohumeral relationship were statistically analyzed.

RESULTS:

The scapulohumeral relationship could be determined reliably: the intraclass correlation coefficient ranged between 0.780 and 0.978; the typical error of measurement ranged between 2.4% and 5.0%. Both type A and type B shoulders showed significant posterior translation of the humeral head ($P < .001$). Type B shoulders had significantly more posterior translation than type A shoulders ($P < .001$). A tendency of inferior translation was noted, although with only marginal statistical significance ($P = .051$). In each morphology class, a medial deviation of the humeral head, representing a reduced glenohumeral distance, was measured ($P < .001$).

CONCLUSIONS:

The main characteristics of primary glenohumeral osteoarthritis are posterior humeral head translation relative to the scapula, reduced glenohumeral distance, and a tendency toward inferior humeral head translation in both type A and type B shoulders.

KEYWORDS: 3D CT reconstruction; 3D scapulohumeral relationship; glenohumeral relationship; glenohumeral subluxation; glenoid morphology; humeral head translation; total shoulder arthroplasty

PMID: 27101773

27. HIP

Groin pain

Sports Med. 2016 May 3.

Movement Patterns and Muscular Function Before and After Onset of Sports-Related Groin Pain: A Systematic Review with Meta-analysis.

Kloskowska P¹, Morrissey D^{2,3}, Small C⁴, Malliaras P^{1,5}, Barton C^{6,4,5}.

Author information

Abstract

BACKGROUND: Sports-related groin pain (SRGP) is a common entity in rotational sports such as football, rugby and hockey, accounting for 12-18 % of injuries each year, with high recurrence rates and often prolonged time away from sport.

OBJECTIVE: This systematic review synthesises movement and muscle function findings to better understand deficits and guide rehabilitation.

STUDY SELECTION: Prospective and retrospective cross-sectional studies investigating muscle strength, flexibility, cross-sectional area, electromyographic activation onset and magnitude in patients with SRGP were included.

SEARCH METHODS: Four databases (MEDLINE, Web of Knowledge, EBSCOhost and EMBASE) were searched in June 2014. Studies were critiqued using a modified version of the Downs and Black Quality Index, and a meta-analysis was performed.

RESULTS: Seventeen studies (14 high quality, 3 low quality; 8 prospective and 9 retrospective) were identified. Prospective findings: moderate evidence indicated decreased hip abduction flexibility as a risk factor for SRGP. Limited or very limited evidence suggested that decreased hip adduction strength during isokinetic testing at ~119°/s was a risk factor for SRGP, but no associations were found at ~30°/s or ~210°/s, or with peak torque angle. Decreased hip abductor strength in angular velocity in ~30°/s but not in ~119°/s and ~210°/s was found as a risk factor for SRGP. No relationships were found with hip internal or external rotation range of movement, nor isokinetic knee extension strength. Decreased isokinetic knee flexion strength also was a potential risk factor for SRGP, at a speed ~60°/s. Retrospective findings: there was strong evidence of decreased hip adductor muscle strength during a squeeze test at 45°, and decreased total hip external rotation range of movement (sum of both legs) being associated with SRGP. There was strong evidence of no relationship to abductor muscle strength nor unilateral hip internal and external rotation range of movement. Moderate evidence suggested that increased abduction flexibility and no change in total hip internal rotation range of movement (sum of both legs) were retrospectively associated with SRGP. Limited or very limited evidence (significant findings only) indicated decreased hip adductor muscle strength during 0° and 30° squeeze tests and during an eccentric hip adduction test, but a decrease in the isometric adductors-to-abductors strength ratio at speed 120°/s; decreased abductors-to-adductors activation ratio in the early phase in the moving leg as well as in all three phases in the weight-bearing leg during standing hip flexion; and increased hip flexors strength during isokinetic and decrease in transversus abdominis muscle resting thickness associated with SRGP.

CONCLUSIONS: There were a number of significant movement and muscle function associations observed in athletes both prior to and following the onset of SRGP. The strength of findings was hampered by the lack of consistent terminology and diagnostic criteria, with there being clear guides for future research. Nonetheless, these findings should be considered in rehabilitation and prevention planning.

PMID:27142535

28. REPLACEMENTS**Exercise rehabilitation**

BMC Musculoskelet Disord. 2016 Apr 21;17(1):173. doi: 10.1186/s12891-016-1023-x.

Does an early home-based progressive resistance training program improve function following total hip replacement? Results of a randomized controlled study.

Okoro T^{1,2}, Whitaker R³, Gardner A⁴, Maddison P⁵, Andrew JG⁴, Lemmey A⁵.
Author information

Abstract

BACKGROUND:

In-hospital progressive resistance training (PRT) has been shown to be an effective method of rehabilitation following hip surgery. The aim of this study was to assess whether a home-based PRT program would be beneficial in improving patients' muscle strength and physical function compared to standard rehabilitation.

METHODS:

Subjects (n = 49) either received home-based PRT rehabilitation (n = 25) or standard rehabilitation (n = 24) in a prospective single blinded randomized trial carried out over a two-year period. The primary outcome measure was the maximal voluntary contraction of the operated leg quadriceps (MVCOLQ) with secondary measures of outcome being the sit to stand score (ST), timed up and go (TUG), stair climb performance (SCP), the 6 min walk test (6MWT), and lean mass of the operated leg (LM).

RESULTS:

Twenty-six patients completed follow up at 1 year (n = 13 per group) for the final comparative analysis. All the outcome measures showed marked progressive improvements from the baseline measures at 9-12 months post op (Estimated effect (std error); p value)- MVCOLQ 26.50 (8.71) N p = 0.001; ST 1.37 (0.33) p = 0.0001; TUG -1.44 (0.45) s p = 0.0001; SCP -3.41(0.80)s p = 0.0001; 6MWT 45.61 (6.10)m p = 0.0001; LM 20 (204)g p = 0.326) following surgery for both groups. Overall, there was no significant effect for participation in the exercise regime compared with standard care for all outcomes assessed.

CONCLUSIONS:

Overall, this study demonstrated that there is no significant difference between the two groups for participation in the home-based PRT exercise programme when compared to standard care for all outcomes.

TRIAL REGISTRATION:

ISRCTN 1309951 . Registered February 2011.

KEYWORDS: Home based rehabilitation; Progressive resistance training; Total hip replacement
PMID: 27097833

29. OA

Nordic track good for

Scand J Med Sci Sports. 2016 Apr 30. doi: 10.1111/sms.12694.

In hip osteoarthritis, Nordic Walking is superior to strength training and home-based exercise for improving function.

Bieler T^{1,2}, Siersma V³, Magnusson SP^{1,2}, Kjaer M², Christensen HE⁴, Beyer N¹.

Author information

Abstract

This observer-blinded, randomized controlled trial compared the short- and long-term effects of 4 months of supervised strength training (ST) in a local fitness center, supervised Nordic Walking (NW) in a local park, and unsupervised home-based exercise (HBE, control) on functional performance in 60+-year-old persons (n = 152) with hip osteoarthritis (OA) not awaiting hip replacement. Functional performance [i.e., 30-s chair stand test (primary outcome), timed stair climbing, and 6-min walk test] and self-reported outcomes (i.e., physical function, pain, physical activity level, self-efficacy, and health-related quality of life) were measured at baseline and at 2, 4, and 12 months. Based on intention-to-treat-analyses improvements [mean (95% CI)] after intervention in number of chair stands were equal in all three groups at 4 months [ST: 0.9 (0.2-1.6), NW: 1.9 (0.8-3.0), HBE: 1.1 (0.1-2.0)] but greater in the NW group [1.4 (0.02-2.8)] than in the ST group at 12 months.

Generally, improvements in functional performance were greater ($P < 0.001$ - $P < 0.03$) after NW compared with HBE and ST at all follow-up time points. Furthermore, NW was superior ($P < 0.01$) to HBE for improving vigorous physical activity and to both ST and HBE for improving ($P < 0.01$) mental health. These data suggest that NW is the recommended exercise modality compared with ST and HBE.

KEYWORDS: RCT design; aerobic training; exercise therapy; functional performance; hip; osteoarthritis; resistance training

PMID: 27129607

Radiology does not support pain

BMJ. 2015 Dec 2;351:h5983. doi: 10.1136/bmj.h5983.

Association of hip pain with radiographic evidence of hip osteoarthritis: diagnostic test study.

Kim C1, Nevitt MC2, Niu J3, Clancy MM3, Lane NE4, Link TM5, Vlad S6, Tolstykh I2, Jungmann PM7, Felson DT8, Guermazi A9.

Author information**Abstract**

STUDY QUESTION: Is there concordance between hip pain and radiographic hip osteoarthritis?

METHODS: In this diagnostic test study, pelvic radiographs were assessed for hip osteoarthritis in two cohorts: the Framingham Osteoarthritis Study (community of Framingham, Massachusetts) and the Osteoarthritis Initiative (a multicenter longitudinal cohort study of osteoarthritis in the United States). Using visual representation of the hip joint, participants reported whether they had hip pain on most days and the location of the pain: anterior, groin, lateral, buttocks, or low back. In the Framingham study, participants with hip pain were also examined for hip pain with internal rotation. The authors analysed the agreement between radiographic hip osteoarthritis and hip pain, and for those with hip pain suggestive of hip osteoarthritis they calculated the sensitivity, specificity, positive predictive value, and negative predictive value of radiographs as the diagnostic test.

STUDY ANSWER AND LIMITATIONS: In the Framingham study (n=946), only 15.6% of hips in patients with frequent hip pain showed radiographic evidence of hip osteoarthritis, and 20.7% of hips with radiographic hip osteoarthritis were frequently painful. The sensitivity of radiographic hip osteoarthritis for hip pain localised to the groin was 36.7%, specificity 90.5%, positive predictive value 6.0%, and negative predictive value 98.9%. Results did not differ much for hip pain at other locations or for painful internal rotation. In the Osteoarthritis Initiative study (n=4366), only 9.1% of hips in patients with frequent pain showed radiographic hip osteoarthritis, and 23.8% of hips with radiographic hip osteoarthritis were frequently painful. The sensitivity of definite radiographic hip osteoarthritis for hip pain localised to the groin was 16.5%, specificity 94.0%, positive predictive value 7.1%, and negative predictive value 97.6%. Results also did not differ much for hip pain at other locations.

WHAT THIS STUDY ADDS: Hip pain was not present in many hips with radiographic osteoarthritis, and many hips with pain did not show radiographic hip osteoarthritis. Most older participants with a high suspicion for clinical hip osteoarthritis (groin or anterior pain and/or painful internal rotation) did not have radiographic hip osteoarthritis, suggesting that in many cases, hip osteoarthritis might be missed if diagnosticians relied solely on hip radiographs.

FUNDING, COMPETING INTERESTS, DATA SHARING: See the full paper on thebmj.com for funding. The authors have no competing interests. Additional data are available from bevochan@bu.edu.

30 A. IMPINGEMENT**Lig. Teres**

Arthroscopy. 2016 Apr 12. pii: S0749-8063(16)00075-X. doi: 10.1016/j.arthro.2016.01.045.

Ligamentum Teres Tears and Femoroacetabular Impingement: Prevalence and Preoperative Findings.

Chahla J¹, Soares EA¹, Devitt BM¹, Peixoto LP¹, Goljan P¹, Briggs KK², Philippon MJ¹.
Author information

Abstract

PURPOSE:

To determine prevalence of ligamentum teres (LT) injuries identified during hip arthroscopy for treatment of femoroacetabular impingement (FAI) and to identify physical examination findings or radiographic characteristics specific to patients with complete LT tears that could possibly assist in a preoperative diagnosis.

METHODS:

Between October 2006 and June 2015, prospective data were collected on consecutive hip arthroscopies. Inclusion criterion was primary hip arthroscopy in patients aged 18 years or older. All patients in the study were treated for chondrolabral dysfunction associated with FAI. Patients with prior hip surgery were excluded. A total of 2,213 out of 3,158 hip arthroscopies met the inclusion criterion.

RESULTS:

Of the 2,213 hips, 233 (11%) had a normal LT, 1,947 (88%) had frayed/partially torn, and 33 (1.5%) had a torn LT. A higher prevalence of torn LT was seen in female subjects. Patients with torn LT had lower body mass index (BMI) (22.5 v 24.7; $P < .01$) than those with hips with normal LT. On radiographs, patients with torn LTs had a lower center edge angle and had increased odds of having a center edge angle less than 25°. Isolated cam or isolated pincer were seen more often in hips with torn LT than in hips with normal LT. Hips with torn LT were 3.1 times more likely to have a chondral defect on the femoral head than were hips with normal LT (95% confidence interval [CI], 1.2-8.7) and were 3.6 times more likely to have capsular laxity diagnosed at hip arthroscopy than were hips with normal LT (95% CI, 1.4-9.4).

CONCLUSIONS:

Among patients with FAI and labral pathology, complete tears of the LT were rare and were more likely to be seen in women and those with lower BMI and low center edge angles at arthroscopy. LT tears were associated with hip laxity and chondral defects of the femoral head.

LEVEL OF EVIDENCE: Level IV, prognostic case series.

PMID: 27083534

32 A. KNEE/ACL**PF OA in post ACL**

J Orthop Sports Phys Ther. 2016 Apr;46(4):232-4. doi: 10.2519/jospt.2016.0603.

Patellofemoral Osteoarthritis: Are We Missing an Important Source of Symptoms After Anterior Cruciate Ligament Reconstruction?

Culvenor AG, Crossley KM.

Abstract

Anterior cruciate ligament (ACL) rupture is a well-established risk factor for knee osteoarthritis (OA).

Fifty to ninety percent of individuals will develop radiographic tibiofemoral OA within a decade after ACL injury and anterior cruciate ligament reconstruction (ACLR). Although less well recognized, radiographic patellofemoral OA is present in approximately 50% of individuals at more than 10 years after ACLR. This early-onset OA and its associated pain and functional limitations pose a particular challenge to younger adults with OA compared to an older OA population. Targeted interventions need to be developed to reduce the burden of early-onset OA following ACLR.

Emerging evidence suggests that such interventions should target both the patellofemoral and tibiofemoral joints. J Orthop Sports Phys Ther 2016;46(4):232-234. doi:10.2519/jospt.2016.0603.

KEYWORDS: ACL; ACLR; OA; age; anterior cruciate ligament; knee osteoarthritis; patellofemoral osteoarthritis; tibial osteoarthritis
PMID: 27032529

Activity variation

J Orthop Sports Phys Ther. 2016 Apr 26:1-16.

The Association Between Knee Confidence and Muscle Power, Hop Performance, and Postural Orientation in People With Anterior Cruciate Ligament Injury.

Ageberg E¹, Roos EM².
Author information

Abstract

Study Design Cross-sectional.

Background The association between muscle function and lack of knee confidence is poorly investigated in people with anterior cruciate ligament (ACL) injury, but such knowledge would help in the design of training programs for this population.

Objective To investigate associations between self-reported knee confidence and muscle function in patients with ACL injury.

Methods Cross-sectional data from 54 patients (mean 30 years, range 20-39, 28% women) with ACL injury, treated with training and reconstructive surgery (n=36) or training only (n=18), were assessed 3 years (SD 0.9) after injury. Univariate and multivariable ordinal regression analyses were conducted to test the association between the patient's knee confidence (Q3 from the Knee injury and Osteoarthritis Outcome Score, KOOS) as the dependent variable, with tests of muscle power, hop performance, and postural orientation (Test for Substitution Patterns, TSP, score) as independent variables (absolute value injured leg, and Limb Symmetry Index (LSI, injured leg divided by uninjured and multiplied by 100) or absolute difference between injured and uninjured legs).

Results Sixteen patients reported no trouble with lack of knee confidence, 24 mild trouble, 10 moderate trouble, and 4 severely or extremely trouble. Univariate analyses revealed significant associations between worse knee confidence and lower (worse) LSIs for knee extension power, vertical jump, and side hop, and worse TSP scores. In the multivariable analysis, worse vertical jump LSI (p=0.043) and worse side hop LSI (p=0.012) significantly accounted for 25% of the variation in perceived knee confidence.

Conclusion Between-leg differences for demanding tasks are associated with knee confidence in the ACL injured population. J Orthop Sports Phys Ther, Epub 26 Apr 2016.
doi:10.2519/jospt.2016.6374.

KEYWORDS: knee injury; performance-based measures; quality of life; self-reported outcomes
PMID: 27117728

33. MENISCUS

Effectiveness of surgeries

Arthroscopy. 2016 Apr 16. pii: S0749-8063(16)00106-7. doi: 10.1016/j.arthro.2016.01.055.

Prevalence of Articular Cartilage Lesions and Surgical Clinical Outcomes in Football (Soccer) Players' Knees: A Systematic Review.

Andrade R¹, Vasta S², Papalia R², Pereira H³, Oliveira JM⁴, Reis RL⁵, Espregueira-Mendes J⁶.
Author information

Abstract

PURPOSE: To systematize the available scientific literature on the prevalence of articular cartilage and/or osteochondral lesions in football (soccer) players' knees, and overview the surgical procedures and functional outcomes and return to sports.

METHODS: A comprehensive search using Pubmed, Cochrane Library, SPORTDiscus, and CINAHL databases was carried out until September 30, 2015. All English language studies that assessed the outcomes of a surgical technique for the treatment of articular cartilage lesions in football players' knees, with a minimum follow-up of 12 months, were included. The reference list of the most relevant papers was screened. The main outcomes of interest were the clinical, arthroscopy or imaging primary outcomes and the return to sports rate. The methodological and reporting qualities were assessed according to Coleman methodology score.

RESULTS: The search provided 485 titles and abstracts. Five studies were eligible for inclusion (mean Coleman score of 37.2 points), comprising a total of 183 football players with a mean age of 25.7 years. A total of 217 articular cartilage and/or osteochondral lesions were reported, where the medial and lateral femoral condyles were the most common sites of lesion. The surgical procedures investigated were mosaicplasty, microfracture, autologous chondrocyte implantation, and chondral debridement.

CONCLUSIONS: No definitive conclusion could be made in respect to the best current surgical technique for articular cartilage and osteochondral lesions. Microfracture and mosaicplasty can provide a faster return to competition and faster clinical and functional results, whereas autologous chondrocyte implantation and/or matrix-induced autologous chondrocytes implantation procedures can enhance longstanding clinical and functional results.

LEVEL OF EVIDENCE: Level IV, systematic review of Level III and IV studies.

PMID: 27090724

MRI

BMC Musculoskelet Disord. 2016 Apr 11;17(1):154. doi: 10.1186/s12891-016-1010-2.

Association of MRI findings and expert diagnosis of symptomatic meniscal tear among middle-aged and older adults with knee pain.

Deshpande BR¹, Losina E^{1,2,3,4}, Smith SR¹, Martin SD^{3,5}, Wright RJ^{3,5}, Katz JN^{6,7,8,9}.
Author information

Abstract

BACKGROUND:

Our aim was to examine the association between an expert clinician's impression of symptomatic meniscal tears and subsequent MRI in the context of middle-aged and older adults with knee pain.

METHODS:

Patients older than 45 were eligible for this IRB-approved substudy if they had knee pain, had not undergone MRI and saw one of two orthopaedic surgeons experienced in the diagnosis of meniscal tear. The surgeon rated their confidence that the patient's symptoms were due to meniscal tear. The patient subsequently had a 1.5 or 3.0 T MRI within 6 months. We examined the association between presence of meniscal tear on MRI and the surgeon's confidence that the knee pain was due to meniscal tear using a χ^2 test for trend.

RESULTS:

Of 84 eligible patients, 63 % were female, with a mean age of 64 years and a mean BMI of 27. The surgeon was confident that symptoms emanated from a tear among 39 %. The prevalence of meniscal tear on MRI overall was 74 %. Among subjects whose surgeon indicated high confidence that symptoms were due to meniscal tear, the prevalence was 80 % (95 % CI 63-90 %). Similarly, the prevalence was 87 % (95 % CI 62-96 %) among those whose surgeon had medium confidence and 64 % (95 % CI 48-77 %) among those whose surgeon had low confidence ($p = 0.12$).

CONCLUSION:

Meniscal tears were frequently found on MRI even when an expert clinician was confident that a patient's knee symptoms were not due to a meniscal tear, indicating that providers should use MRI sparingly and cautiously to confirm or rule out the attribution of knee pain to meniscal tear.

KEYWORDS: Diagnosis; Knee pain; MRI; Meniscal tear
PMID: 27067990

34. PATELLA**Patella pain and OA**

Sports Med. 2016 May 3.

Is There a Biomechanical Link Between Patellofemoral Pain and Osteoarthritis? A Narrative Review.

Wyndow N¹, Collins N^{1,2}, Vicenzino B¹, Tucker K³, Crossley K^{4,5}.
Author information

Abstract

The patellofemoral (PF) joint is the knee compartment most commonly affected by osteoarthritis (OA). Even mild PF OA is associated with considerable pain and functional limitations. Despite its prevalence and impact, little is understood of the etiology or structural and functional features of PF OA. The clinical symptoms of PF OA, such as anterior knee pain during stair ambulation and squatting, share many similarities with PF pain in adolescents and young adults. PF joint OA is most commonly diagnosed in people aged >40 years, many of whom report a history of PF pain. As such, there is growing evidence that PF pain and PF OA form a continuum of disease. This review explores the possible relationship between the presence of PF pain and the development of PF OA. We review the evidence for altered neuromotor control and biomechanical factors that may be associated with altered PF loading in people with PF pain and PF OA. In doing so, we highlight similarities and differences that may evolve along the continuum. By improving our understanding of the neuromotor and biomechanical links between PF pain and PF OA, we may highlight potential targets for new rehabilitation strategies.
PMID: 27142536

35. KNEE/TOTAL**Alignment impact**

Knee Surg Sports Traumatol Arthrosc. 2016 Apr 16.

Influence of sagittal plane component alignment on kinematics after total knee arthroplasty.

Antony J¹, Tetsworth K², Hohmann E^{2,3}.
Author information

Abstract

PURPOSE:

Knee kinematics is pivotal to patient satisfaction and functional ability after total knee arthroplasty (TKA). The aim of this study is to examine the influence of sagittal plane component alignment as defined by femoral component angle (FCA), tibial slope (TS) and posterior condylar offset (PCO) on knee kinematics as defined by maximum extension angle (MEA), maximum flexion angle (MFA) and range of motion (ROM) after TKA.

METHODS:

This is a prospective, cross-sectional study of 105 osteoarthritic knees that underwent primary cruciate retaining TKA using a single implant design at a single tertiary institution. The sagittal plane component alignment was measured on weight-bearing true lateral radiographs taken day one post-operation and knee kinematics measured using a goniometer 1 year after TKA by the primary investigator.

RESULTS:

Although the MFA was influenced by gender ($P = 0.04$); age, gender and pre-operative kinematics did not otherwise influence post-operative knee kinematics. The prediction model for MFA was statistically significant ($P = 0.03$) and accounted for 8.4 % of the variance. FCA ($r = 0.3$, $P = 0.01$) and PCO ($r = 0.2$, $P = 0.05$) demonstrated a statistically significant correlation with MFA. However, the prediction models for ROM and MEA did not achieve statistical significance. FCA ($r = 0.2$, $P = 0.02$) demonstrated a statistically significant correlation with ROM.

CONCLUSION:

The most important findings of this study are that the FCA demonstrates weak positive correlation with MFA and ROM and that PCO demonstrates weak positive correlation with MFA. However, TS does not contribute significantly to knee kinematics after TKA. This is clinically relevant as orthopaedic surgeons can increase the PCO in cruciate retaining TKA and the FCA within therapeutic limits to improve knee kinematics.

LEVEL OF EVIDENCE: II.

KEYWORDS: Femoral component angle (FCA); Posterior condylar offset (PCO); Range of motion (ROM); Tibial slope (TS); Total knee arthroplasty (TKA)

PMID: 27085365

Changes in mechanics

Knee. 2016 Apr 11. pii: S0968-0160(15)00282-3. doi: 10.1016/j.knee.2015.11.015.

Preoperative varus-valgus kinematic pattern throughout flexion persists more strongly after cruciate-retaining than after posterior-stabilized total knee arthroplasty.

Hino K¹, Oonishi Y², Kutsuna T³, Watamori K⁴, Iseki Y⁵, Kiyomatsu H⁶, Watanabe S⁷, Miura H⁸.
Author information

Abstract

BACKGROUND:

Restoration of normal knee kinematics is key to improving patient satisfaction and functional outcomes after total knee arthroplasty (TKA). However, the effect of preoperative varus-valgus kinematics due to knee osteoarthritis on the postoperative kinematics is unclear. The function of the knee ligament contributes to both knee stability and kinematics. The aim of this study was to evaluate changes in varus-valgus kinematics before and after TKA using a navigation system, in addition to comparing the pre- and postoperative changes in kinematic patterns between cruciate-retaining (CR)- and posterior-stabilized (PS)-TKAs.

METHODS:

Forty knees treated with TKA were evaluated (CR-TKA 20; PS-TKA 20). Manual mild passive knee flexion was applied while moving the leg from full extension to flexion. The varus-valgus angle was automatically measured by a navigation system at every 10° of the flexion angle, and the kinematics were evaluated.

RESULTS:

Kinematic patterns throughout flexion can be classified into five types. The pre- and postoperative kinematic patterns were similar in 60% of patients who underwent CR-TKA, whereas they were similar in only 25% of those who underwent PS-TKA. The mean change in the size of the varus-valgus angle throughout flexion did not differ between CR-TKA and PS-TKA. However, the distribution of changes in the size of the varus-valgus angle differed between CR-TKA and PS-TKA.

CONCLUSIONS:

We obtained the following results: 1) some patterns of varus-valgus kinematics are noted under unloading conditions despite recovery of neutral alignment in extension and 2) the preoperative varus-valgus kinematic pattern persisted more strongly after CR-TKA than after PS-TKA.

KEYWORDS: Alignment; Kinematics; Mid-flexion alignment; Total knee arthroplasty; Varus-valgus

PMID: 27080743

Physical activity after hip and knee

J Orthop Sports Phys Ther. 2016 Apr 26:1-42.

Does Physical Activity Increase After Total Hip or Knee Arthroplasty for Osteoarthritis? A Systematic Review.

Arnold JB¹, Walters JL², Ferrar KE¹.

Author information

Abstract

Study Design Systematic review.

Background Despite improvements in self-reported symptoms and perceived functional ability after total hip (THA) and total knee arthroplasty (TKA), whether changes in objectively measured physical activity (PA) occur after surgery is unclear. Objective To determine if objectively measured PA increases after THA and TKA in adults with osteoarthritis (OA).

Methods Five electronic databases were searched from inception to March 3rd 2015. All study designs objectively measuring PA before and after THA or TKA were eligible, including randomised controlled trials, cohort and case-control studies. Two reviewers independently screened abstracts, full texts and extracted study demographics, physical activity and clinical outcome data. Standardised mean differences (SMDs) and 95% confidence intervals were calculated for accelerometer and pedometer derived estimates of PA. Risk of methodological bias was assessed with Critical Appraisal Skills Programme (CASP) checklists.

Results Eight studies with a total of 373 participants (238 TKA, 135 THA) were included. Findings were mixed regarding improvement in objectively measured PA at 6 months after THA (SMDs -0.20 - 1.80) and TKA (SMDs -0.36 - 0.63). Larger improvements from two studies at 1 year postoperatively were generally observed after THA (SMDs 0.39 - 0.79) and TKA (SMDs 0.10 - 0.85). However, at 1 year, PA levels were still considerably lower than that of healthy controls (THA SMDs -0.25 - -0.77; TKA SMDs -1.46 - -1.80). Risk of bias scores ranged from three to nine out of 11 (27-81%) for cohort studies, and three to eight out of 10 (30-50%) for case-control studies.

Conclusion The best available evidence indicates negligible changes in PA at 6 months after THA or TKA, with limited evidence for larger changes at 1 year postoperatively. In the four studies that reported control group data, postoperative PA levels were still considerably less than healthy controls. Improved perioperative strategies to instil behavioural change are required to narrow the gap between patient perceived functional improvement and actual amount of PA undertaken after THA and TKA. Level of Evidence Level 2a: systematic review. J Orthop Sports Phys Ther, Epub 26 Apr 2016. doi:10.2519/jospt.2016.6449.

KEYWORDS: arthroplasty; exercise; joint replacement; physical activity; systematic review
PMID: 27117726

37. OSTEOARTHRITIS/KNEE**MT and OA****Changes in co-contraction during stair descent after manual therapy protocol in knee osteoarthritis: a pilot, single-blind, randomized study**

Carlos Cruz-Montecinos, PT, MSc Rodrigo Flores-Cartes, BS Agustín Montt-Rodriguez, BS Esteban Pozo, BS Alvaro Besoain-Saldaña, PT Giselle Horment-Lara, PT, MSc

Abstract**Introduction**

Manual therapy has shown clinical results in patients with knee osteoarthritis. However, the biomechanical aspects during functional tasks have not been explored in depth.

Methods

Through surface electromyography, the medial and lateral co-contractions of the knee were measured while descending stairs, prior and posterior to applying a manual therapy protocol in the knee, with emphasis on techniques of joint mobilization and soft-tissue management.

Results

Sixteen females with slight or moderate knee osteoarthritis were recruited (eight experimental, eight control). It was observed that the lateral co-contraction index of the experimental group, posterior to intervention, increased by 11.7% ($p = 0.014$).

Conclusions

The application of a manual therapy protocol with emphasis on techniques of joint mobilization and soft-tissue management modified lateral co-contraction, which would have a protective effect on the joint.

Keywords: knee Osteoarthritis, Manual therapy, Electromyography, Co-contraction

Functional assessment

J Orthop Sports Phys Ther. 2016 Mar 21:1-38.

Comparing the Predictive Value of Task-Performance and Task-Specific Sensitivity During Physical Function Testing Among People With Knee Osteoarthritis.

Wideman TH¹, Edwards RR², Finan PH³, Haythornthwaite JA³, Smith MT³.
Author information

Abstract

Study Design Cross-sectional cohort.

Background Knee osteoarthritis (OA) is a leading cause of pain and mobility restriction. Past research has advocated the use of brief functional tasks to evaluate these restrictions, such as the 6-Minute-Walk (6MW) and Timed-Up-and-Go (TUG) tests. Typically, only task performance (i.e. walking distance, completion time) is used to inform clinical practice. Recent research, however, suggests that individual variance in how people feel while completing these tasks (i.e. task sensitivity) might also have important clinical value.

Objective To compare the predictive value of task performance and task-specific sensitivity in determining OA-related physical function (measured by The Western Ontario and McMaster Universities Arthritis Index) and pain-related interference (measured by the Multidimensional Pain Inventory).

Methods 108 participants with chronic knee OA completed 6MW and TUG tests and reported levels of discomfort and affective response (mood) associated with each test.

Results In separate regression models, both task performance and task-specific sensitivity predicted OA-related physical function and pain-related interference. A final regression model including all significant predictors showed that task-specific sensitivity (specifically post 6MW discomfort) emerged as a unique predictor of both outcomes.

Conclusion These findings highlight the value of a novel clinical assessment strategy for patients with knee OA. While clinicians commonly focus on how patients perform on standardized functional tasks, these results highlight the value of also considering levels of post-task sensitivity. Measures of task-specific sensitivity relate to Maitland's concept of pain irritability, which might be a useful framework for future research on sensitizing factors and pain-related disability. J Orthop Sports Phys Ther, Epub 21 Mar 2016. doi:10.2519/jospt.2016.6311.

KEYWORDS: musculoskeletal pain; pain irritability; sensitivity to physical activity
PMID: 26999411

38 A. FOOT AND ANKLE**Reduced activity after ankle fx.**

J Orthop Sports Phys Ther. 2016 Apr;46(4):235-42. doi: 10.2519/jospt.2016.6297. Epub 2016 Mar 8.

Reduced Physical Activity in People Following Ankle Fractures: A Longitudinal Study.

Beckenkamp PR, Lin CW, Engelen L, Moseley AM.

Abstract

Study Design Longitudinal observational cohort.

Background The impact of ankle fracture on physical activity and sitting time and the course of recovery of physical activity are unclear.

Objectives To assess the course of recovery of physical activity after ankle fracture and the extent to which this population may be less physically active and more sedentary than the general population.

Methods A cohort of individuals with ankle fracture was derived from a randomized trial and assessed with the International Physical Activity Questionnaire-Short Form (IPAQ-SF) at immobilization removal and 1, 3, and 6 months later. Total metabolic equivalent (MET) minutes per week were calculated to evaluate the course of recovery of physical activity. Sitting time (minutes per day) and the percentage of those who met the World Health Organization physical activity guidelines were calculated. Normative data were derived from a population-based cohort study that assessed physical activity using the IPAQ-SF.

Results In people with ankle fracture (n = 214), physical activity increased in the first month (from a median of 99 at immobilization removal to 979 MET min/wk) and leveled off by 6 months (1386 MET min/wk). Only 22% of the ankle fracture cohort met World Health Organization guidelines at immobilization removal, compared to 80% of the cohort from the general population (P<.001). This difference diminished over time. Sitting time in the ankle fracture cohort was higher than population norms at all time points (P<.001).

Conclusion People with ankle fracture are less physically active and more sedentary than the general population. Strategies to increase physical activity must be considered. Level of Evidence Prognosis, level 4. J Orthop Sports Phys Ther 2016;46(4):235-242. Epub 8 Mar 2016. doi:10.2519/jospt.2016.6297.

KEYWORDS: *exercise; lower extremity injury; prognosis*

PMID: 26954274

39 B. SHOES**Rocker bottom**

J Foot Ankle Surg. 2016 Apr 12. pii: S1067-2516(16)00143-5. doi: 10.1053/j.jfas.2016.03.008.

A Randomized Comparison of the Biomechanical Effect of Two Commercially Available Rocker Bottom Shoes to a Conventional Athletic Shoe During Walking in Healthy Individuals.

Talaty M¹, Patel S², Esquenazi A³.
Author information

Abstract

Rocker bottom shoes have recently gained considerable popularity, likely in part because of the many purported benefits, including reducing joint loading and toning muscles.

Scientific inquiry about these benefits has not kept pace with the increased usage of this shoe type. A fundamental premise of rocker bottom shoes is that they transform hard, flat, level surfaces into more uneven ones. Published studies have described a variety of such shoes—all having a somewhat rounded bottom and a cut heel region or a cut forefoot region, or both (double rocker). Despite the fundamentally similar shoe geometries, the reported effects of rocker bottom shoes on gait biomechanics have varied considerably. Ten healthy subjects agreed to participate in the present study and were given appropriately sized Masai Barefoot Technology (St. Louis, MO), Skechers™ (Manhattan Beach, CA), and New Balance (Boston, MA) conventional walking shoes. After a 12-day accommodation period, the subjects walked wearing each shoe while 3-dimensional motion and force data were collected in the gait laboratory.

The key findings included (1) increased trunk flexion, decreased ankle plantarflexion range, and reduced plantarflexion moment in the early stance; (2) increased ankle dorsiflexion and knee flexor moment in the midstance; (3) decreased peak ankle plantarflexion in the late stance; and (4) decreased ankle plantarflexion and decreased hip flexor and knee extensor moments in the pre-swing and into swing phase. The walking speed was unconstrained and was maintained across all shoe types. A biomechanical explanation is suggested for the observed changes. Suggestions for cautions are provided for using rocker bottom shoes in patients with

KEYWORDS: gait analysis; injury; kinematics; kinetics; unstable shoe
PMID: 27079303

41 B. COMPARTMENT SYNDROME**Pediatric CS**

J Foot Ankle Surg. 2016 Apr 8. pii: S1067-2516(16)00131-9. doi: 10.1053/j.jfas.2016.02.010.

Acute Traumatic Compartment Syndrome in Pediatric Foot: A Systematic Review and Case Report.

Wallin K¹, Nguyen H², Russell L³, Lee DK⁴.

Author information

Abstract

Acute compartment syndrome of the lower leg and foot is a not widely reported, but serious, potential complication that can develop after fractures, crush injuries, or high-velocity trauma of the lower extremity.

Early recognition and treatment are critical in preventing morbidity and permanent complications. Although compartment syndrome of the lower leg and foot has been well-studied and documented in adults, its occurrence in the pediatric population is rare. We performed a systematic review of the published data and present the case of the youngest patient with isolated ACS of the foot. A high index of suspicion is warranted in pediatric patients with a traumatic injury to the lower extremity for compartment syndrome. Inconclusive radiographic findings owing to skeletal immaturity and the inability to verbalize symptoms place young children at high risk of undiagnosed compartment syndrome.

Clinicians should have a very low threshold for fasciotomy to prevent long-term sequelae associated with undiagnosed compartment syndrome.

KEYWORDS: 4; compartment syndrome; fasciotomy; foot; pediatrics; trauma
PMID: 27067201

45 A. MANUAL THERAPY LUMBAR & GENERAL**Manual therapy and LBP**

BMC Musculoskelet Disord. 2016 Apr 23;17(1):176. doi: 10.1186/s12891-016-1030-y.

Three combinations of manual therapy techniques within naprapathy in the treatment of neck and/or back pain: a randomized controlled trial.

Paanalahti K^{1,2}, Holm LW^{1,3}, Nordin M^{1,4}, Höjjer J⁵, Lyander J², Asker M^{1,2}, Skillgate E^{6,7}.
Author information

Abstract

BACKGROUND:

Manual therapy as spinal manipulation, spinal mobilization, stretching and massage are common treatment methods for neck and back pain. The objective was to compare the treatment effect on pain intensity, pain related disability and perceived recovery from a) naprapathic manual therapy (spinal manipulation, spinal mobilization, stretching and massage) to b) naprapathic manual therapy without spinal manipulation and to c) naprapathic manual therapy without stretching for male and female patients seeking care for back and/or neck pain.

METHOD:

Participants were recruited among patients, ages 18-65, seeking care at the educational clinic of Naprapathögskolan - the Scandinavian College of Naprapathic Manual Medicine in Stockholm. The patients (n = 1057) were randomized to one of three treatment arms a) manual therapy (i.e. spinal manipulation, spinal mobilization, stretching and massage), b) manual therapy excluding spinal manipulation and c) manual therapy excluding stretching. The primary outcomes were minimal clinically important improvement in pain intensity and pain related disability. Treatments were provided by naprapath students in the seventh semester of eight total semesters. Generalized estimating equations and logistic regression were used to examine the association between the treatments and the outcomes.

RESULTS:

At 12 weeks follow-up, 64 % had a minimal clinically important improvement in pain intensity and 42 % in pain related disability. The corresponding chances to be improved at the 52 weeks follow-up were 58 % and 40 % respectively. No systematic differences in effect when excluding spinal manipulation and stretching respectively from the treatment were found over 1 year follow-up, concerning minimal clinically important improvement in pain intensity (p = 0.41) and pain related disability (p = 0.85) and perceived recovery (p = 0.98). Neither were there disparities in effect when male and female patients were analyzed separately.

CONCLUSION:

The effect of manual therapy for male and female patients seeking care for neck and/or back pain at an educational clinic is similar regardless if spinal manipulation or if stretching is excluded from the treatment option.

TRIAL REGISTRATION:

Current Controlled Trials ISRCTN92249294.

KEYWORDS: Back pain; Muskuloskeletal manipulations; Naprapathy; Neck pain
PMID: 27107960

45 D. MANUAL THERAPY EXTREMITIES**MT and OA****Changes in co-contraction during stair descent after manual therapy protocol in knee osteoarthritis: a pilot, single-blind, randomized study**

Carlos Cruz-Montecinos, PT, MSc Rodrigo Flores-Cartes, BS Agustín Montt-Rodriguez, BS Esteban Pozo, BS Alvaro Besoain-Saldaña, PT Giselle Horment-Lara, PT, MSc

Abstract**Introduction**

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Through surface electromyography, the medial and lateral co-contractions of the knee were measured while descending stairs, prior and posterior to applying a manual therapy protocol in the knee, with emphasis on techniques of joint mobilization and soft-tissue management.

Results

Sixteen females with slight or moderate knee osteoarthritis were recruited (eight experimental, eight control). It was observed that the lateral co-contraction index of the experimental group, posterior to intervention, increased by 11.7% ($p = 0.014$).

Conclusions

The application of a manual therapy protocol with emphasis on techniques of joint mobilization and soft-tissue management modified lateral co-contraction, which would have a protective effect on the joint.

Keywords:

knee Osteoarthritis, Manual therapy, Electromyography, Co-contraction

48 A. STM**Short fascia**

Spine (Phila Pa 1976). 2016 Apr;41(8):E489-93. doi: 10.1097/BRS.0000000000001276.

Shorter Lumbar Paraspinal Fascia Is Associated With High Intensity Low Back Pain and Disability.

Ranger TA¹, Teichtahl AJ, Cicuttini FM, Wang Y, Wluka AE, O'Sullivan R, Jones G, Urquhart DM.

Author information

Abstract

STUDY DESIGN:

A cross-sectional, community-based study.

OBJECTIVE:

The aim of this study was to investigate the relationship between structural features of the thoracolumbar fascia and low back pain and disability.

SUMMARY OF BACKGROUND DATA:

The thoracolumbar fascia plays a role in stabilization of the spine by transmitting tension from the spinal and abdominal musculature to the vertebrae. It has been hypothesized that the fascia is associated with low back pain through the development of increased pressure in the paraspinal compartment, which leads to muscle ischemia.

METHODS:

Seventy-two participants from a community-based study of musculoskeletal health underwent Magnetic Resonance Imaging from the T12 vertebral body to the sacrum. The length of the paraspinal fascia and cross-sectional area of the paraspinal compartment were quantitatively measured from axial images at the level of the transverse processes and the Chronic Pain Grade Scale was used to assess low back pain intensity and disability.

RESULTS:

A shorter length of fascia around the paraspinal compartment was significantly associated with high intensity low back pain and/or disability, after adjusting for age, gender, and body mass index [right odds ratio (OR) 1.9, 95% CI 0.99-3.8, P=0.05; left OR 2.6, 95% CI 1.2 to 5.6, P=0.01). Further adjustment for the cross-sectional area of the compartment strengthened the associations between fascial length and low back pain/or disability (right OR 8.9, 95% CI 1.9-40.9, P=0.005; left OR 9.6, 95% CI 1.2-42.9, P=0.003).

CONCLUSION:

This study has demonstrated that a shorter lumbar paraspinal fascia is associated with high intensity low back pain and/or disability among community-based adults. Although cohort studies are needed, these results suggest that structural features of the fascia may play a role in high levels of low back pain and disability.

LEVEL OF EVIDENCE: 3.

PMID: 27064338

MT and OA

Changes in co-contraction during stair descent after manual therapy protocol in knee osteoarthritis: a pilot, single-blind, randomized study

Carlos Cruz-Montecinos, PT, MSc Rodrigo Flores-Cartes, BS Agustín Montt-Rodriguez, BS Esteban Pozo, BS Alvaro Besoain-Saldaña, PT Giselle Horment-Lara, PT, MSc

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Keywords: *knee Osteoarthritis, Manual therapy, Electromyography, Co-contraction*

53. CORE**Altered multifidus function in gait**

J Orthop Sports Phys Ther. 2016 Mar 21:1-32.

Altered Multifidus Recruitment During Walking in Young Asymptomatic Individuals With a History of Low Back Pain.

Smith JA^{1,2}, Kulig K².
Author information

Abstract

Study Design Cross sectional, laboratory study.

Background Individuals with low back pain have impaired activation of multifidus during postural adjustments and increased activity of the erector spinae musculature during walking. However, it is unclear if these alterations in muscle activity are evident during locomotion in individuals with a history of low back pain when they are between symptomatic episodes.

Objectives To compare paraspinal muscle activity in young healthy individuals and young individuals with a history of low back pain during walking turns.

Methods 14 asymptomatic individuals with a history of low back pain and 14 controls performed 90° walking turns at both self-selected and fast speed. The duration and amplitude of activity in the deep fibers of multifidus and the lumbar and thoracic longissimus were quantified using intramuscular electromyography.

Results There was a significant speed by group interaction for the duration of multifidus activity ($p = .013$). Duration of activity increased from the self-selected to the fast locomotor speed in the controls, but decreased in the individuals with a history of low back pain ($p = .003$). Self-selected speed was the same in both groups ($p = .719$). There was a trend towards a significant association between group and the direction of change in the duration of deep multifidus activity ($\chi^2 = .058$). Duration of thoracic longissimus activity and amplitude of multifidus and thoracic longissimus activity increased similarly in both groups from the self-selected to faster speed.

Conclusion Even between symptomatic episodes, young individuals with a history of low back pain demonstrated altered recruitment of the deep fibers of lumbar multifidus in response to changing locomotor speed during walking turns. J Orthop Sports Phys Ther, Epub 21 Mar 2016. doi:10.2519/jospt.2016.6230.

KEYWORDS: locomotion; paraspinal muscles; recurrent back pain; walking turns
PMID: 26999410

55. SCOLIOSIS**Vit D**

Spine (Phila Pa 1976). 2016 Apr;41(8):693-7. doi: 10.1097/BRS.0000000000001286.

Association of Calcium and Phosphate Balance, Vitamin D, PTH, and Calcitonin in Patients With Adolescent Idiopathic Scoliosis.

Goździalska A¹, Jaśkiewicz J, Knapik-Czajka M, Drąg J, Gawlik M, Cieśla M, Kulis A, Zarzycki D, Lipik E.

Author information

Abstract

STUDY DESIGN:

A cross-sectional study of 2 groups of patients with scoliosis, and an age-matched control group was conducted. Each of the groups such as patients with adolescent idiopathic scoliosis (AIS) as well as control group were divided additionally into 2 groups: premenarcheal and postmenarcheal girls.

OBJECTIVE:

The aim of the study was to determine the levels of 25-OH-vitamin D3, calcium and phosphate, parathyroid hormone (PTH), and calcitonin in serum of pre- and postmenarcheal girls with AIS and corresponding groups of scoliosis-free controls.

SUMMARY OF BACKGROUND DATA:

The primary etiology and pathogenesis of AIS remains unknown. It is assumed that vitamin D deficiency and genetic predisposition, for example, polymorphisms of vitamin D receptor, have a great significance. Vitamin D plays a key role in skeletal development and prevents bone atrophy, affects the absorption of calcium, maintains calcium-phosphate homeostasis, and the bone matrix mineralization. Its deficiency can result in a wide variety of skeletal deformities, low bone mass, and then leads to the disappearance of bone. Defects in trabecular bone structure and/or bone mineralization are the main features of scoliosis. Some studies have reported that Vitamin D deficiency is common among patients with AIS. The mechanism of Vitamin D action on scoliosis development is still unclear.

METHODS:

Determination of serum 25-OH-D3 levels was performed using high-performance liquid chromatography chromatography; concentrations of calcium and phosphate were measured using colorimetric methods, and concentration of PTH and calcitonin was measured using ELISA system.

RESULTS:

Reduction in the serum levels of 25-OH-D3 and calcitonin in girls with AIS compared with healthy girls was demonstrated.

CONCLUSION:

The phosphate-calcium balance and PTH level seem to be normal in patients with AIS. The calcitonin level in girls with AIS is 2-fold lower than in healthy subjects. It is possible that the deficiency of vitamin D can be involved in AIS.

LEVEL OF EVIDENCE: 4.

PMID: 27064335

57. GAIT**Gait changes post surgery**

Knee Surg Sports Traumatol Arthrosc. 2016 Apr 16.

Gait adaptations following multiple-ligament knee reconstruction occur with altered knee kinematics during level walking.

Scholes CJ¹, Lynch JT², Ebrahimi M², Fritsch BA², Parker DA².
Author information

Abstract

PURPOSE:

The biomechanical behaviour of the knee following multiple-ligament reconstruction (MLKR) may play a role in the pathogenesis of post-traumatic osteoarthritis. The aim of this study was to compare three-dimensional knee kinematics and gait characteristics of MLKR patients to healthy controls during level walking.

METHODS:

Three-dimensional optoelectronic motion capture during overground walking was performed on 16 patients with MLKR and a group of healthy controls matched individually to each patient for age, gender, height and weight. Three-dimensional knee angles were extracted from the weight acceptance and propulsion sub-phases of gait. Statistical analysis was performed using group-aggregated data, as well as for each patient-control pair using a single-case approach.

RESULTS:

Although group analysis detected few differences, single-case analysis revealed significant differences for a proportion of patients for all dependent variables during weight acceptance and propulsion sub-phases of stance. These kinematic differences occurred in the context of reduced gait velocity, step length and cadence, as well as increased time spent in double support.

CONCLUSION:

Patients with MLKR display abnormalities in knee kinematics during gait at an average of 4.5 years after surgery. The pattern of kinematic abnormalities appears individual specific and may not be related to differences in spatiotemporal gait characteristics. The current findings describe detailed functional outcomes of MLKR reconstruction at average medium-term follow-up that provide improved prognostic information for clinicians to counsel patients with these types of injuries.

KEYWORDS: Gait; Knee; Multiple-ligament reconstruction; Single-case; Stance; Variability
PMID: 27085367

Altered multifidus function in gait

J Orthop Sports Phys Ther. 2016 Mar 21:1-32.

Altered Multifidus Recruitment During Walking in Young Asymptomatic Individuals With a History of Low Back Pain.

Smith JA^{1,2}, Kulig K².

Author information

Abstract

Study Design Cross sectional, laboratory study.

Background Individuals with low back pain have impaired activation of multifidus during postural adjustments and increased activity of the erector spinae musculature during walking. However, it is unclear if these alterations in muscle activity are evident during locomotion in individuals with a history of low back pain when they are between symptomatic episodes.

Objectives To compare paraspinal muscle activity in young healthy individuals and young individuals with a history of low back pain during walking turns.

Methods 14 asymptomatic individuals with a history of low back pain and 14 controls performed 90° walking turns at both self-selected and fast speed. The duration and amplitude of activity in the deep fibers of multifidus and the lumbar and thoracic longissimus were quantified using intramuscular electromyography.

Results There was a significant speed by group interaction for the duration of multifidus activity ($p = .013$). Duration of activity increased from the self-selected to the fast locomotor speed in the controls, but decreased in the individuals with a history of low back pain ($p = .003$). Self-selected speed was the same in both groups ($p = .719$). There was a trend towards a significant association between group and the direction of change in the duration of deep multifidus activity ($\chi^2 = .058$). Duration of thoracic longissimus activity and amplitude of multifidus and thoracic longissimus activity increased similarly in both groups from the self-selected to faster speed.

Conclusion Even between symptomatic episodes, young individuals with a history of low back pain demonstrated altered recruitment of the deep fibers of lumbar multifidus in response to changing locomotor speed during walking turns. J Orthop Sports Phys Ther, Epub 21 Mar 2016. doi:10.2519/jospt.2016.6230.

KEYWORDS: locomotion; paraspinal muscles; recurrent back pain; walking turns

PMID: 26999410

59. PAIN

Tinnitus and phantom Pain

Med Hypotheses. 2016 Jun;91:95-7. doi: 10.1016/j.mehy.2016.04.023. Epub 2016 Apr 16.

Parallels between phantom pain and tinnitus.

Peker S¹, Sirin A².

Author information

Abstract

Phantom pain and tinnitus are diseases that cause patients great discomfort. Both are phantom sensations that have many connections with cerebral structures, but their underlying mechanisms are not fully understood. Several therapies have been suggested for these conditions over the years, but there is still no consensus on how to treat either one. Comparison of these two phenomena reveals many similarities, including what is known about their underlying mechanisms, associated brain areas, and responses to therapeutic agents and methods. These similarities need to be evaluated in greater depth, as this could improve our understanding of tinnitus and phantom pain, and thereby improve management strategies for these conditions.

PMID: 27142154

Pain anxiety**Characteristics and consequences of the co-occurrence between social anxiety and pain-related fear in chronic pain patients receiving multimodal pain rehabilitation treatment**

Scandinavian Journal of Pain, 05/02/2016 Wurm M, et al.

The aim is also to study the characteristics of these potential subgroups and the consequences of different patterns of social anxiety and pain related fear. A subgroup of patients with clinical levels of social anxiety has suboptimal rehabilitation results, with residual emotional problems and high levels of emotional vulnerability.

Methods

- 180 patients with chronic musculoskeletal pain answered questionnaires before and after a multimodal pain treatment in a hospital rehabilitation setting in middle Sweden.
- A cluster analysis using pre-treatment scores on the Social Phobia Screening Questionnaire and the Tampa Scale of Kinesiophobia was performed.
- Subgroups were thereafter validated and compared on impairment due to social anxiety, pain catastrophizing, anxiety, and depression.
- Moreover, subgroups were described and compared on vulnerability factors (anxiety sensitivity, negative affect) and outcome factors (pain intensity, pain interference, and return to work self-efficacy).

Results

- Four distinct clusters emerged: (1) low scores, (2) pain-related fear only, (3) social concern only, and (4) high social anxiety and pain-related fear. Patients high on social anxiety and pain-related fear had significantly higher levels of anxiety sensitivity, negative affect, and higher general emotional symptomatology.
- They also had remaining problems posttreatment

61. FIBROMYALGIA**Economic cost of**

BMC Musculoskelet Disord. 2016 Apr 16;17(1):168. doi: 10.1186/s12891-016-1027-6.

Fibromyalgia-related costs and loss of productivity: a substantial societal burden.

Lacasse A¹, Bourgault P^{2,3}, Choinière M^{4,5}.

Author information

Abstract

BACKGROUND:

This study aimed at describing pain-related health care resource use, direct costs, and productivity loss among patients suffering from fibromyalgia syndrome (FMS).

METHODS:

A cost-of-illness study with a sample of 57 adults having a diagnosis of FMS was conducted in the province of Quebec (Canada). Data regarding FMS-related direct costs and productivity loss from paid and unpaid work over a three-month period were collected using a standardized structured telephone interview protocol. Direct costs were valued in 2009 Canadian dollars using a societal perspective.

RESULTS:

Results showed that average direct costs over a three-month period added up to \$951 per patient (SD: \$710), which could be translated in a mean annual cost of \$3804. The purchase of prescribed medications led to the highest costs (mean: \$329, SD: \$321), followed by consultations to health care professionals other than physicians (mean: \$129, SD: \$222) and physicians consultations (mean: \$98, SD: \$116). Results further showed a high economic burden for patients themselves, aside from costs covered by public or private insurers. Among the subsample of participants who had a paid job (45.6 %), an average of 5.6 days (SD: 13.2) were lost due to pain during the past three months. Among those who were not employed (54.4 %), an average of 25.1 days in household productivity (SD: 24.8) were lost.

CONCLUSIONS:

FMS is associated with a substantial socioeconomic burden. Further research is clearly needed to improve the management of this type of disorder and make better decisions regarding resource allocation.

KEYWORDS: Chronic pain; Cost of illness; Direct costs; Fibromyalgia; Productivity loss; Societal costs

PMID: 27084363

62 A. NUTRITION/VITAMINS**Chocolate consumption and health**

Br J Nutr. 2016 Mar 17:1-8.

Daily chocolate consumption is inversely associated with insulin resistance and liver enzymes in the Observation of Cardiovascular Risk Factors in Luxembourg study.

Alkerwi A¹, Sauvageot N¹, Crichton GE¹, Elias MF², Stranges S¹.

Author information

Abstract

This study examined the association of chocolate consumption with insulin resistance and serum liver enzymes in a national sample of adults in Luxembourg.

A random sample of 1153 individuals, aged 18-69 years, was recruited to participate in the cross-sectional Observation of Cardiovascular Risk Factors in Luxembourg study. Chocolate consumption (g/d) was obtained from a semi-quantitative FFQ. Blood glucose and insulin levels were used for the homoeostasis model assessment of insulin resistance (HOMA-IR). Hepatic biomarkers such as serum γ -glutamyl-transpeptidase (γ -GT), serum aspartate transaminase and serum alanine transaminase (ALT) (mg/l) were assessed using standard laboratory assays. Chocolate consumers (81.8 %) were more likely to be younger, physically active, affluent people with higher education levels and fewer chronic co-morbidities. After excluding subjects taking antidiabetic medications, higher chocolate consumption was associated with lower HOMA-IR ($\beta=-0.16$, $P=0.004$), serum insulin levels ($\beta=-0.16$, $P=0.003$) and γ -GT ($\beta=-0.12$, $P=0.009$) and ALT ($\beta=-0.09$, $P=0.004$), after adjustment for age, sex, education, lifestyle and dietary confounding factors, including intakes of fruits and vegetables, alcohol, polyphenol-rich coffee and tea.

This study reports an independent inverse relationship between daily chocolate consumption and levels of insulin, HOMA-IR and liver enzymes in adults, suggesting that chocolate consumption may improve liver enzymes and protect against insulin resistance, a well-established risk factor for cardiometabolic disorders. Further observational prospective research and well-designed randomised-controlled studies are needed to confirm this cross-sectional relationship and to comprehend the role and mechanisms that different types of chocolate may play in insulin resistance and cardiometabolic disorders.

KEYWORDS: FPG fasting plasma glucose; HOMA-IR homoeostasis model assessment of insulin resistance; ORISCAV-LUX Observation of Cardiovascular Risk Factors in Luxembourg; Chocolate consumption; Insulin resistance; Liver enzymes
PMID: 26983749

Multivitamin use and heart disease

J Nutr. 2016 Apr 27. pii: jn227884.

Multivitamin Use and the Risk of Cardiovascular Disease in Men.

Rautiainen S¹, Rist PM², Glynn RJ³, Buring JE², Gaziano JM⁴, Sesso HD⁵.

BACKGROUND:

Although multivitamins are widely used by US adults, few prospective studies have investigated their association with the long- and short-term risks of cardiovascular disease (CVD).

OBJECTIVE:

The aim of this study was to investigate how multivitamin use is associated with the risk of CVD in initially healthy men at baseline.

METHODS:

We studied 18,530 male physicians aged ≥ 40 y from the Physicians' Health Study I cohort who were free of CVD and cancer at baseline (1982). All men provided a wide range of self-reported lifestyle and clinical factors plus intake of selected foods and dietary supplements. Cox proportional hazards models were used to calculate multivariable-adjusted HRs (95% CIs).

RESULTS:

During a mean follow-up of 12.2 y (total of 225,287 person-years), there were 1697 incident cases of major CVD (defined as nonfatal myocardial infarction, nonfatal stroke, and CVD death). In multivariable-adjusted analyses, no significant associations were observed among baseline multivitamin users compared with nonusers for the risk of major CVD events (HR: 0.94; 95% CI: 0.84, 1.05), whereas a self-reported duration of ≥ 20 y at baseline was associated with lower risk (HR: 0.56; 95% CI: 0.35, 0.90; P-trend = 0.05). Baseline multivitamin use was also significantly inversely associated with the risk of cardiac revascularization (HR: 0.86; 95% CI: 0.75, 0.98). Baseline use of multivitamins was not significantly associated with other CVD endpoints.

CONCLUSION:

In this long-term prospective study in initially healthy men, multivitamin use for ≥ 20 y was associated with a lower risk of major CVD events.

KEYWORDS: cardiovascular diseases; epidemiology cohort; multivitamin supplements; nutrition; prevention

Probiotics and RA

Int J Rheum Dis. 2016 May 2. doi: 10.1111/1756-185X.12888.

Clinical and metabolic response to probiotic supplementation in patients with rheumatoid arthritis: a randomized, double-blind, placebo-controlled trial.

Zamani B¹, Golkar HR¹, Farshbaf S^{2,3}, Emadi-Baygi M^{2,3}, Tajabadi-Ebrahimi M⁴, Jafari P⁵, Akhavan R⁶, Taghizadeh M⁶, Memarzadeh MR⁷, Asemi Z⁶.

Author information

Abstract

OBJECTIVE:

This study was performed to determine the effects of probiotic supplementation on clinical and metabolic status of patients with rheumatoid arthritis (RA).

METHODS:

Sixty patients with RA aged 25-70 years were assigned into two groups to receive either probiotic capsules (n = 30) or placebo (n = 30) in this randomized, double-blind, placebo-controlled trial. The patients in the probiotic group received a daily capsule that contained three viable and freeze-dried strains: *Lactobacillus acidophilus* (2×10^9 colony-forming units [CFU]/g), *Lactobacillus casei* (2×10^9 CFU/g) and *Bifidobacterium bifidum* (2×10^9 CFU/g) for 8 weeks. The placebo group took capsules filled with cellulose for the same time period. Fasting blood samples were taken at the beginning and the end of the study to quantify related markers.

RESULTS:

After 8 weeks of intervention, compared with the placebo, probiotic supplementation resulted in improved Disease Activity Score of 28 joints (DAS-28) (-0.3 ± 0.4 vs. -0.1 ± 0.4 , $P = 0.01$). In addition, a significant decrease in serum insulin levels (-2.0 ± 4.3 vs. $+0.5 \pm 4.9$ μ IU/mL, $P = 0.03$), homeostatic model assessment-B cell function (HOMA-B) (-7.5 ± 18.0 vs. $+4.3 \pm 25.0$, $P = 0.03$) and serum high-sensitivity C-reactive protein (hs-CRP) concentrations (-6.66 ± 2.56 vs. $+3.07 \pm 5.53$ mg/L, $P < 0.001$) following the supplementation of probiotics compared with the placebo. Subjects who received probiotic capsules experienced borderline statistically significant improvement in total- ($P = 0.09$) and low-density lipoprotein-cholesterol levels ($P = 0.07$) compared with the placebo.

CONCLUSION:

Overall, the results of this study indicated that taking probiotic supplements for 8 weeks among patients with RA had beneficial effects on DAS-28, insulin levels, HOMA-B and hs-CRP levels.

KEYWORDS: metabolic profiles; probiotic; rheumatoid arthritis; supplementation
PMID: 27135916