

**Nº de abstracts = 45**

**Modificado em 23 Fevereiro**

**Internet-enhanced management of fibromyalgia: a randomized controlled trial.**

Williams DA, Kuper D, Segar M, Mohan N, Sheth M, Clauw DJ.: Pain, 2010, 151(3):694-702. Chronic Pain and Fatigue Research Center, University of Michigan, 24 Frank Lloyd Wright Drive, Lobby M, Ann Arbor, MI 48106, USA.

Both pharmacological and non-pharmacological interventions have demonstrated efficacy in the management of fibromyalgia (FM). Non-pharmacological interventions however are far less likely to be used in clinical settings, in part due to limited access. This manuscript presents the findings of a randomized controlled trial of an Internet-based exercise and behavioral self-management program for FM designed for use in the context of a routine clinical care. 118 individuals with FM were randomly assigned to either (a) standard care or (b) standard care plus access to a Web-Enhanced Behavioral Self-Management program (WEB-SM) grounded in cognitive and behavioral pain management principles. Individuals were assessed at baseline and again at 6 months for primary endpoints: reduction of pain and an improvement in physical functioning. Secondary outcomes included fatigue, sleep, anxiety and depressive symptoms, and a patient global impression of improvement. Individuals assigned to the WEB-SM condition reported significantly greater improvement in pain, physical functioning, and overall global improvement. Exercise and relaxation techniques were the most commonly used skills throughout the 6 month period. A no-contact, Internet-based, self-management intervention

demonstrated efficacy on key outcomes for FM. While not everyone is expected to benefit from this approach, this study demonstrated that non-pharmacological interventions can be efficiently integrated into routine clinical practice with positive outcomes.

### **Contributing factors to patient non-attendance at and non-completion of Phase III cardiac rehabilitation.**

Kerins M, McKee G, Bennett K, European journal of Cardiovascular Nursing : journal of the Working Group on Cardiovascular Nursing of the European Society of Cardiology, 2011, 10(1):31-6.

Cardiac Rehabilitation Unit, CReST Directorate, St James's Hospital, James Street, Dublin 8, Ireland.

**B**

#### **ACKGROUND:**

Cardiac rehabilitation (CR) is generally underutilized.

#### **AIM:**

The aim of this study was to describe the rate of non-attendance after enrolment and non-completion after commencement to Phase III CR and to explore associated factors.

#### **METHOD:**

A review of medical records was carried out to determine the profile of all patients who enrolled on a CR programme. Patients who enrolled but did not attend or did not complete the programme were surveyed to ascertain the primary underlying reasons for this. A convenience sub-sample of these was then selected for semi-structured interviews (n=7) to explore the reasons for non-attendance/non-completion further.

#### **RESULTS:**

Of the patients that enrolled, 11% (n=29) did not attend and 19% (n=51) did not complete the programme. The non-attendees and non-completers were significantly more likely to be unskilled manual workers (p=0.018) or smokers (p=0.001). Illness and not interested were the most common primary reasons for non-attendance and non-completion respectively. Further qualitative exploration of the contributing factors revealed exercise, depression and organizational factors contributed to these reasons.

#### **CONCLUSIONS:**

The study highlights that individual patient profiles and needs, if unmet contribute to poor attendance. This suggests that if these needs were identified and addressed more comprehensively throughout CR, attendance at Phase III programmes would improve.

## **Acute effect of different stretching methods on Illinois agility test in soccer players.**

Amiri-Khorasani M, Sahebozamani M, Tabrizi KG, Yusof AB.: Journal of Strength and Conditioning Research / National Strength & Conditioning Association, 2010, 24(10):2698.-  
Sports Centre, University of Malaya, Malaysia.

The purpose of this study was to examine the effects of static, dynamic, and the combination of static and dynamic stretching within a pre-exercise warm-up on the Illinois agility test (IAT) in soccer players. Nineteen professional soccer players (age =  $22.5 \pm 2.5$  years, height =  $1.79 \pm 0.003$  m, body mass =  $74.8 \pm 10.9$  kg) were tested for agility performance using the IAT after different warm-up protocols consisting of static, dynamic, combined stretching, and no stretching. The players were subgrouped into less and more experienced players ( $5.12 \pm 0.83$  and  $8.18 \pm 1.16$  years, respectively). There were significant decreases in agility time after no stretching, among no stretching vs. static stretching; after dynamic stretching, among static vs. dynamic stretching; and after dynamic stretching, among dynamic vs. combined stretching during warm-ups for the agility: mean  $\pm$  SD data were  $14.18 \pm 0.66$  seconds (no stretch),  $14.90 \pm 0.38$  seconds (static),  $13.95 \pm 0.32$  seconds (dynamic), and  $14.50 \pm 0.35$  seconds (combined). There was significant difference between less and more experienced players after no stretching and dynamic stretching. There was significant decrease in agility time following dynamic stretching vs. static stretching in both less and more experienced players. Static stretching does not appear to be detrimental to agility performance when combined with dynamic warm-up for professional soccer players. However, dynamic stretching during the warm-up was most effective as preparation for agility performance. The data from this study suggest that more experienced players demonstrate better agility skills due to years of training and playing soccer.

## **Frozen shoulder: the effectiveness of conservative and surgical interventions—systematic review**

M M Favejee, B M A Huisstede, B W Koes.: Br J Sports Med, 2011; 45:49-56.

**Background** A variety of therapeutic interventions is available for restoring motion and diminishing pain in patients with frozen shoulder. An overview article concerning the evidence for the effectiveness of these interventions is lacking. **Objective** To provide an evidence-based overview regarding the effectiveness of conservative and surgical interventions to treat the frozen shoulder.

**Methods**

The Cochrane Library, PubMed, Embase, Cinahl and Pedro were searched for relevant systematic reviews and randomised clinical trials (RCTs). Two reviewers independently selected relevant studies, assessed the methodological quality and extracted data. A best-evidence synthesis was used to summarise the results.

**Results**

Five Cochrane reviews and 18 RCTs were included studying the effectiveness of oral medication, injection therapy, physiotherapy, acupuncture, arthrographic distension and suprascapular nerve block (SSNB).

**Conclusions**

We found strong evidence for the effectiveness of steroid injections and laser therapy in short-term and moderate evidence for steroid injections in mid-term follow-up. Moderate evidence was found in favour of mobilisation techniques in the short and long term, for the effectiveness of arthrographic distension alone and as an addition to active physiotherapy in the short term, for the effectiveness of oral steroids compared with no treatment or placebo in the short term, and for the effectiveness of SSNB compared with acupuncture, placebo or steroid injections. For other commonly used interventions no or only limited evidence of effectiveness was found. Most of the included studies reported short-term results, whereas symptoms of frozen shoulder may last up to 4 years. High quality RCTs studying long-term results are clearly needed in this field.

## **The effect of electrical stimulation on recovery from exercise-induced muscle damage. Leeder J, Spence J, Taylor E, Harrison A, Howatson G**

British journal of sports medicine 45(15):A21, 2011 Dez The aim was to investigate the efficacy of a commercially available electrical stimulation device purporting to facilitate recovery from strenuous

exercise. Eight participants (5 male and 3 female, age range 23-30 y) volunteered for the study and were familiarised with all exercises involved. Prior to damaging exercise, participants completed tests of maximal isometric voluntary contraction of the knee extensors (MIVC-E) and flexors (MIVC-F) of both legs and perception of delayed-onset muscle soreness (DOMS) was ascertained via a 200 mm visual analogue scale. To induce muscle damage, participants completed 5 sets of 20 drop jumps (10 s between jumps, 2 min between sets) from a 60 cm (males) or 40 cm high (females) platform. Electrical stimulation (Bodyflow, Victoria, Australia) was applied at 1.52 Hz for 3×20 min per day, separated by 5 h, for the next 48 h, randomised into either the dominant (n = 4) or non-dominant leg (n = 4), with the contralateral leg acting as the non-treatment control. Participants completed tests of MIVC-E and MIVC-F and a visual analogue scale 24 h and 48 h following the exercise insult. DOMS showed an increase over time ( $p < 0.05$ ). At 24 h after exercise, relative reductions in MIVC-E for control and treatment groups were  $16 \pm 8\%$  and  $11 \pm 7\%$ , respectively, and at 48 h  $8 \pm 8\%$  and  $5 \pm 8\%$ , respectively. Electrical stimulation was not effective at alleviating perceptions of DOMS following muscle damaging exercise, but there was a trend towards accelerated recovery of knee extensor strength. Further research is required to elucidate this finding with a larger and more homogenous sample population.

**Does a 3-month multidisciplinary intervention improve pain, body composition and physical fitness in women with fibromyalgia? Carbonell-Baeza A, Aparicio VA, Ortega FB, Cuevas AM, Alvarez IC, Ruiz JR, Delgado-Fernandez M**

British journal of sports medicine 45(15):1189-95, 2011, dez  
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Carretera de Alfacar, s/n, 18011, Granada, Spain. anellba@ugr.es.

**Objective** To determine the effects of a 3-month multidisciplinary intervention on pain (primary outcome), body composition and physical fitness (secondary outcomes) in women with fibromyalgia (FM).  
**Methods** 75 women with FM were allocated to a low-moderate intensity 3-month (three times/week) multidisciplinary (pool, land-based and psychological sessions) programme (n=33) or to a usual care group (n=32). The outcome variables were pain threshold, body composition (body mass index and estimated body fat percentage) and physical fitness (30 s chair stand, handgrip strength, chair sit and reach, back scratch, blind flamingo, 8 feet up and go and 6 min walk test).  
**Results** The authors observed a significant interaction effect (group\*time) for the left (L) and right (R) side of the anterior cervical (p15 per set); however, a particular sport may necessitate fewer repetitions.

## **Strengthening and neuromuscular reeducation of the gluteus maximus in a triathlete with exercise-associated cramping of the hamstrings.**

Wagner T, Behnia N, Ancheta WK, Shen R, Farrokhi S, Powers CM.: The Journal of Orthopaedic and Sports physical Therapy, 2010, 40(2):112-9.

Kaiser Permanente Southern California Orthopaedic Physical Therapy Residency Program, Woodland Hills, CA, USA.

Study design: Case report. Objective: To highlight the effects of an intervention program consisting of strengthening and neuromuscular reeducation of the gluteus maximus in an elite triathlete with exercise-associated muscle cramping (EAMC).

### **Background**

: Researchers have described 2 theories concerning the etiology of EAMC: (1) muscle fatigue and (2) electrolyte deficit. As such, interventions for EAMC typically consist of stretching/strengthening of the involved muscle and/or supplements to restore electrolyte imbalances.

### **Case Description**

: The patient was a 42-year-old male triathlete with a primary complaint of recurrent cramping of his right hamstring muscle, which prevented him from completing races at his desired pace. Strength testing revealed gluteus maximus muscle weakness bilaterally.

Electromyographic (EMG) analysis (surface electrodes, 1560 Hz) revealed that the right hamstrings were being activated excessively

during terminal swing and the first half of the stance phase (48.1% maximum voluntary isometric contraction [MVIC]).

#### Outcomes

: Following the intervention, the patient was able to complete 3 triathlons without hamstring cramping. Strength testing revealed that the right hip extension strength improved from 35.6 to 54.7 kg, and activation of the hamstrings during terminal swing and the first half of the stance phase decreased to 36.4% of MVIC.

#### Discussion

: A program of gluteus maximus strengthening and neuromuscular training eliminated EAMC of the hamstrings in this patient. Given that the hamstrings and gluteus maximus work as agonists to decelerate the thigh during terminal swing phase and control hip flexion during loading response of running, we postulate that strengthening of the gluteus maximus decreased the relative effort required by the hamstrings, thus reducing EAMC. The results of the EMG evaluation that was performed as part of this case report provides support for this hypothesis.

**Canadian Society for Exercise Physiology position stand:  
The use of instability to train the core in athletic and  
nonathletic conditioning.**

Behm DG, Drinkwater EJ, Willardson JM, Cowley PM.: Applied



Physiology, Nutrition, and Metabolism = Physiologie Appliquée,  
Nutrition et Metabolism, 2010,  
35(1):109-12.

School of Human Kinetics and Recreation, Memorial University of  
Newfoundland, St. John's, NL A1C 5S7, Canada.

The use of instability devices and exercises to train the core musculature is an essential feature of many training centres and programs. It was the intent of this position stand to provide recommendations regarding the role of instability in resistance training programs designed to train the core musculature. The core is defined as the axial skeleton and all soft tissues with a proximal attachment originating on the axial skeleton, regardless of whether the soft tissue terminates on the axial or appendicular skeleton. Core stability can be achieved with a combination of muscle activation and intra-abdominal pressure. Abdominal bracing has been shown to be more effective than abdominal hollowing in optimizing spinal stability. When similar exercises are performed, core and limb muscle activation are reported to be higher under unstable conditions than under stable conditions. However, core muscle activation that is similar to or higher than that achieved in unstable conditions can also be achieved with ground-based free-weight exercises, such as Olympic lifts, squats, and dead lifts. Since the addition of unstable bases to resistance exercises can decrease force, power, velocity, and range of motion, they are not recommended as the primary training mode for athletic conditioning. However, the high muscle activation with the use of lower loads associated with instability resistance training suggests they can play an important role within a periodized training schedule, in rehabilitation programs, and for nonathletic individuals who prefer not to use ground-based free weights to achieve musculoskeletal health benefits.

## **Concentric evertor strength differences and functional ankle instability: a meta-analysis.**

Arnold BL, Linens SW, de la Motte SJ, Ross SE.: Journal of Athletic Training, 2009, 44(6):653-62. Virginia Commonwealth University, 1015 West Main Street, PO Box, 842020, Richmond, VA 23284-2020, USA.

Objective: To determine whether concentric evertor muscle weakness was associated with functional ankle instability (FAI). Data

sources :

We conducted an electronic search through November 2007, limited to English, and using PubMed, Pre-CINAHL, CINAHL, and SPORTDiscus. A forward search was conducted using the Science Citation Index on studies from the electronic search. Finally, we conducted a hand search of all selected studies and contacted the respective authors to identify additional studies. We included peer-reviewed manuscripts, dissertations, and theses.

Study design

: We evaluated the titles and abstracts of studies identified by the electronic searches. Studies were selected by consensus and reviewed only if they included participants with FAI or chronic ankle instability and strength outcomes. Studies were included in the analysis if means and SDs (or other relevant statistical information, such as P values or t values and group n's) were reported for FAI and stable groups (or

ankles).

#### Data extraction

: Data were extracted by the authors independently, cross-checked for accuracy, and limited to outcomes of concentric eversion strength. We rated each study for quality. Outcomes were coded as either fast or slow velocity (ie, equal to or greater than 110 degrees /s or less than 110 degrees /s, respectively).

#### Data synthesis

: Data included the means, SDs, and group sample sizes (or other appropriate statistical information) for the FAI and uninjured groups (or ankles). The standard difference in the means (SDM) for each outcome was calculated using the pooled SD. We tested individual and overall SDMs using the Z statistic and comparisons between fast and slow velocities using the Q statistic. Our analysis revealed that ankles with FAI were weaker than stable ankles (SDM = 0.224, Z = 4.0, P

**Eccentric calf muscle exercise produces a greater acute reduction in Achilles tendon thickness than concentric exercise.**

Grigg NL, Wearing SC, Smeathers JE

. British Journal of Sports Medicine, 43(4):280-3, 2009.

Institute of Health and Biomedical Innovation, Queensland University of Technology, Brisbane, Australia.

Objective: To investigate the acute effects of isolated eccentric and concentric calf muscle exercise on Achilles tendon sagittal thickness.

Design

: Within-subject, counterbalanced, mixed design.

Setting:

Institutional.

Participants

: 11 healthy, recreationally active male adults.

Interventions

: Participants performed an exercise protocol, which involved isolated eccentric loading of the Achilles tendon of a single limb and isolated concentric loading of the contralateral, both with the addition of 20% bodyweight. Main outcome measurements: Sagittal sonograms were acquired prior to, immediately following and 3, 6, 12 and 24 h after exercise. Tendon thickness was measured 2 cm proximal to the superior aspect of the calcaneus.

Results

: Both loading conditions resulted in an immediate decrease in normalised Achilles tendon thickness. Eccentric loading induced a significantly greater decrease than concentric loading despite a similar impulse (-0.21 vs -0.05, p90% compared with their uninjured leg on all

single-legged hop tests at the 1-year follow-up. The IKCD 2000 scores in the non-operated and ACL-reconstructed group were on average 86 and 87. ACL-injured subjects should be informed of the possibility of success after non-operative treatment, but future studies are needed to determine significant predictive factors for success for non-operative and surgically treated individuals..

### **Body weight-supported treadmill training for patients with hip fracture: a feasibility study.**

Giangregorio LM, Thabane L, Debeer J, Farrauto L, McCartney N, Adachi JD, Papaioannou A.: Archives of physical medicine and rehabilitation, 90(12):2125-30, 2009.

Department of Kinesiology, University of Waterloo, Waterloo, and Toronto Rehabilitation Institute, Toronto, Canada.

Body weight-supported treadmill training for patients with hip fracture: a feasibility study. Objective: To determine the feasibility of body weight-supported treadmill training (BWSTT) as a strategy for improving

independent ambulation among patients who had sustained a hip fracture.

Design: Nonrandomized controlled

trial.

Setting: Inpatient

rehabilitation.

Participants

Participants

: Patients with a stable hip fracture and at least 50% weight-bearing.

Intervention

: BWSTT in lieu of standard walking exercises throughout stay in rehabilitation.

Main outcome measures

: Feasibility outcomes included the number of patients agreeing to participate in treadmill walking, the number who returned for follow-up assessments, compliance, and the number of adverse events.

Secondary outcomes included the Lower Extremity Functional Scale, the Timed Up & Go test, a 2-minute walk test, and the Falls

Self-Efficacy Scale. Univariate regression was used to assess the group effect on score changes from baseline to discharge and from baseline to follow-up.

Results

: Among 41 potentially eligible patients, 21 (51%) agreed to participate and 14 returned for follow-up assessments. The recruitment goal of 12 patients agreeing to BWSTT was achieved; however, retention by 3-month follow-up was 67%. The average compliance was 3 sessions a week; however, several patients were below average. No adverse events of BWSTT were reported. There were no significant differences between groups with respect to secondary outcomes.

Conclusions

: BWSTT may be a feasible method for retraining gait among patients with hip fracture. However, future studies evaluating its efficacy need rigorous methods for ensuring compliance and retention.

**Cross-sectional investigation of indices of isokinetic leg strength in youth soccer players and untrained individuals.**

Iga J, George K, Lees A, Reilly T

.: Scandinavian Journal of Medicine & Science in Sports, 19(5):714-9, 2009.

Faculty of Sport, Health and Social Care, University of Gloucestershire, Gloucestershire, UK.

In this cross-sectional study, the differences in the isokinetic peak torque of the knee joint muscles (dominant and non-dominant) were investigated in three groups of youths (n=45; age, 14.9 $\pm$ 1.1 years) with different soccer training backgrounds. Significant main effects were observed for training background on the functional hamstrings to quadriceps ratios for knee flexion (H(CON):Q(ECC) ratio;

F(2,42)=4.023, P=0.025) and extension (H(ECC):Q(CON) ratio; F(2,42)=8.53, P or = 1 year), motor-incomplete SCI. Subjects were tested before and after participation in a 12-session (3 days/week for 4 weeks) intervention of WBV. We assessed change in walking function via 3D motion capture, with walking speed as the primary outcome measure. We also assessed the influence of the WBV intervention on secondary gait characteristics, including cadence, step length, and hip-knee intralimb coordination. Walking speed increased by a mean of 0.062+/-0.011 m/s, a change that was statistically significant (p