

Nonprescribed physical activity energy expenditure is maintained with structured exercise and implicates a compensatory increase in energy intake.

The American journal of clinical nutrition [Add to My Journals List](#) 

201011 92(5):1009-16 Language: eng Country: United States Sport, Health and Exercise Science, School for Health, University of Bath, Bath, United Kingdom. **BACKGROUND:** Exercise interventions elicit only modest weight loss, which might reflect a compensatory reduction in nonprescribed physical activity energy expenditure (PAEE). **OBJECTIVE:** The objective was to investigate whether there is a reduction in nonprescribed PAEE as a result of participation in a 6-mo structured exercise intervention in middle-aged men. **DESIGN:** Sedentary male participants [age: 54 ± 5 y; body mass index (in kg/m^2): 28 ± 3] were randomly assigned to a 6-mo progressive exercise (EX) or control (CON) group. Energy expenditure during structured exercise (prescribed PAEE) and nonprescribed PAEE were determined with the use of synchronized accelerometry and heart rate before the intervention, during the intervention (2, 9, and 18 wk), and within a 2-wk period of detraining after the intervention. **RESULTS:** Structured prescribed exercise increased total PAEE and had no detrimental effect on nonprescribed PAEE. Indeed, there was a trend for greater nonprescribed PAEE in the EX group ($P = 0.09$). Weight loss in the EX group (-1.8 ± 2.2 kg compared with $+0.2 \pm 2.2$ kg in the CON group, $P < 0.02$) reflected only $\sim 40\%$ of the 300-373 kcal/kg body mass potential energy deficit from prescribed exercise. Serum leptin concentration decreased by 24% in the EX group (compared with 3% in the CON group, $P < 0.03$), and we estimate that this was accompanied by a compensatory increase in energy intake of ~ 100 kcal/d. **CONCLUSIONS:** The adoption of regular structured exercise in previously sedentary, middle-aged, and overweight men does not result in a negative compensatory reduction in nonprescribed physical activity. The less-than-predicted weight loss is likely to reflect a compensatory increase in energy intake in response to a perceived state of relative energy insufficiency. PMID: 20826629

Effectiveness of foot and hand massage in postcesarean pain control in a group of Turkish pregnant women.

Applied nursing research : ANR [Add to My Journals List](#) 

201008 23(3):153-8 Language: eng Country: United States Nursing College, Osmangazi University, 26480 Meselik-Eskisehir, Turkey. The aim of this study was to determine the efficiency of foot and hand massage on reducing postoperative pain in patients who had cesarean operation. This pretest-posttest design study was planned as a randomized controlled experimental study. In the light of the results, it was reported that the reduction in pain intensity was significantly meaningful in both intervention groups when compared to the control group. It was also noted that vital findings were measured comparatively higher before the massage in the test groups, and they were found to be relatively lower in the measurements conducted right before and after the massage, which was considered to be statistically meaningful. Foot and hand massage proved useful as an effective nursing intervention in controlling postoperative pain. PMID: 20643325

Intensive rehabilitation in children with cerebral palsy: our view on the neuronal group selection theory.

Collegium antropologicum [Add to My Journals List](#) 

201009 34(3):981-8 Language: eng Country: Croatia "Prof. Milena Stojcevic-Polovina"
Polyclinic for Physical Medicine and Rehabilitation, Zagreb, Croatia. poliklinika@zg.t-com.hr
Cerebral palsy (CP) is one of the major forms of developmental disorders. There are different approaches and controversies in rehabilitation treatment. The Neuronal Group Selection theory could provide theoretical explanation for Stojcevic Polovina rehabilitation method. The aim of the study was to evaluate long-term impact of intensive and continuously performed rehabilitation on the motor autonomy level children with CR Motor autonomy levels, defined according to the Gross Motor Function Classification System (GMFCS) and Gross Motor Function Measure (GMFM), were analyzed in 24 children with CP at the beginning of the study and at the last visit. During rehabilitation, GMFM scores increased above the expected value of initial GMFCS level in the majority of patients. Intensive rehabilitation had significant influence on motor improvement in children with CP.

Therapeutic massage of the neck and shoulders produces changes in peripheral blood flow when assessed with dynamic infrared thermography.

Journal of alternative and complementary medicine (New York, N.Y.) [Add to My Journals List](#)



201007 16(7):723-32 Language: eng Country: United States Neuromechanics Research Laboratory, Department of Kinesiology, Auburn University, Auburn, AL 36849, USA. jmsefton@auburn.edu OBJECTIVE: This study's objective was to determine the effect of therapeutic massage on peripheral blood flow utilizing dynamic infrared thermography in a constant temperature/humidity thermal chamber to assess noncontact skin temperature. DESIGN: The design was a repeated-measures crossover experimental design; the independent variable was treatment condition (massage, light touch, control). SETTING: The study setting was a university research laboratory. SUBJECTS: Seventeen (17) healthy volunteers (8 males/9 females; age = 23.29 +/- 3.06) took part in the study. INTERVENTIONS: One (1) 20-minute neck and shoulder therapeutic massage treatment was performed for each of the three treatment conditions. OUTCOME MEASURES: The dependent variable was noncontact, mean skin temperature in 15 regions measured at 6 time points (pretest and 15, 25, 35, 45, and 60 minutes post-test) for each treatment condition. RESULTS: The massage treatment produced significant elevations in temperature in five regions: anterior upper chest ($p = 0.04$), posterior neck ($p = 0.0006$), upper back ($p = 0.0005$), posterior right arm ($p = 0.03$), and middle back ($p = 0.02$). Massage therapy produced significant increases in temperature over time, compared to the other conditions, in the anterior upper chest, and posterior neck, upper back, right arm, and the middle back. Additionally, the temperatures remained above baseline levels after 60 minutes. Interestingly, the massage treatment produced significant temperature elevations in two nonmassaged areas posterior right arm and middle back. CONCLUSIONS: These changes in temperature suggest corresponding changes in peripheral blood flow in the treated areas as well as in adjacent not-massaged areas. Moreover, the results suggest dynamic infrared thermography as a useful tool to measure noninvasive, noncontact changes in peripheral blood flow for massage therapy research. PMID: 20590481

[Systematic review of clinical randomized controlled trials on manipulative treatment of lumbar disc herniation].

Zhongguo gu shang = China journal of orthopaedics and traumatology [Add to My Journals List](#) 

201009 23(9):696-700 Language: chi Country: China Department of Orthopaedics, Shuguang Hospital Affiliated to Shanghai University of TCM, Shanghai 200021, China. OBJECTIVE: To evaluate the efficacy and safety of the manipulative treatment on lumbar disc herniation and analyze the current status of clinical studies. METHODS: The PubMed, OVID, Cochrane Library, CBM - disc database, CNKI database and VIP Database were retrieved, and 832 literatures on manipulative treatment for lumbar disc herniation were collected, in which 8 articles met the inclusion criteria. Cochrane systematic review was used to evaluate the quality; and RevMan 4.2 was used for Meta Analysis of Literatures. RESULTS: There were total 911 patients in the 8 articles. The summary OR for the combined cure rate of the 8 articles was 3.65, and the 95% CI was [2.15, 6.20]. The summary OR for the combined efficiency was 3.56, and the 95% CI was [2.35, 5.38]. The cure rate and effective rate of the patients in manipulative group were superior to those of patients treated with other methods such as drugs, traction, acupuncture, microwave thermotherapy (all the methods were called as "other therapies"). CONCLUSION: This study shows that manipulative treatment on lumbar disc herniation is safe, effective, and both cure rate and the effective rate is better than other therapies. But the number of documents is limited and the quality is not very high, and the conclusion is still uncertain, high-quality evidence is needed to be further validated.

Dynamic STM increases hamstring flexibility in health male subjects

Hopper D, Deacon S, Das S, Jain A, Riddell D, Hall T, Briffa K

Br J Sports Med 2005; 39(9): 594-598

Target Condition:

728.8 - Other disorders of muscle, ligament, and fascia

Element of Patient/Client Management Model: Intervention

Practice Pattern(s):

Musculoskeletal - Pattern D: Impaired Joint Mobility, Motor Function, Muscle Performance, and Range of Motion Associated With Connective Tissue Dysfunction

Design Type: Clinical Trial, Random

Study Population: Adults (18-64 years)

Population Location: Outpatient / ambulatory care, Other

Inclusion Criteria: Straight leg raise between 40 degrees and 70 degrees.

Exclusion Criteria: History of a hamstring injury within the last 2 years, low back pain in the last 2 months, or any indication of lumbar or lower limb neurological compromise.

How were subjects selected: Non-Probability Sample

How many subjects were contacted initially: Not Reported

How many subjects were eligible to participate: Not Reported

How many subjects agreed to participate: 45

Non-clinical characteristics of study participants: Male volunteers between the ages of 18 and 35 years (mean age = 23.7 years with a SD of 4.6 years).

Clinical characteristics of study participants: Overall healthy baseline level.

Blinded Clinicians: No

Blinded Subjects: No

Same person providing treatment and testing measures: No

Blinded assessor: Yes

Intention to treat analysis: Not Provided

Treatment Group 1 : Classic STM group was positioned lying prone with hip and knee of the dominant leg in a neutral relaxed position. 5 strokes each of effleurage, kneading, picking up, and shaking techniques were performed and were completed in 5 minutes.

Treatment Group 2 : Dynamic STM group received classic STM for 5 minutes and then received deep longitudinal strokes to entire muscle group of dominant leg. They were then positioned in supine with hip and knee flexed to 90 degrees and techniques were worked from three quarters to end ROM. The first dynamic intervention included deep longitudinal strokes applied from distal to proximal over areas of tightness; this included five strokes and 20 seconds of shaking. If reassessment revealed tightness has not reduced, then treatment was stopped. If reduction occurred, the second dynamic intervention which included active

extension of leg to achieve reciprocal inhibition of hamstrings was applied. Reassessment was repeated and if tightness was reduced, then treatment continued. The third dynamic intervention included the patient working the hamstrings eccentrically by creating tension in the therapist's hand as the muscle was elongated to the end ROM and 5 deep longitudinal strokes were applied from distal to proximal.

Control/Referent Group R : Received no STM.

Authors Stated Purpose: The purpose of this study was to investigate the effect of dynamic soft tissue mobilisation on hamstring flexibility in healthy male subjects.

Interventions:

- Manual Therapy Techniques
 - * mobilization / manipulation

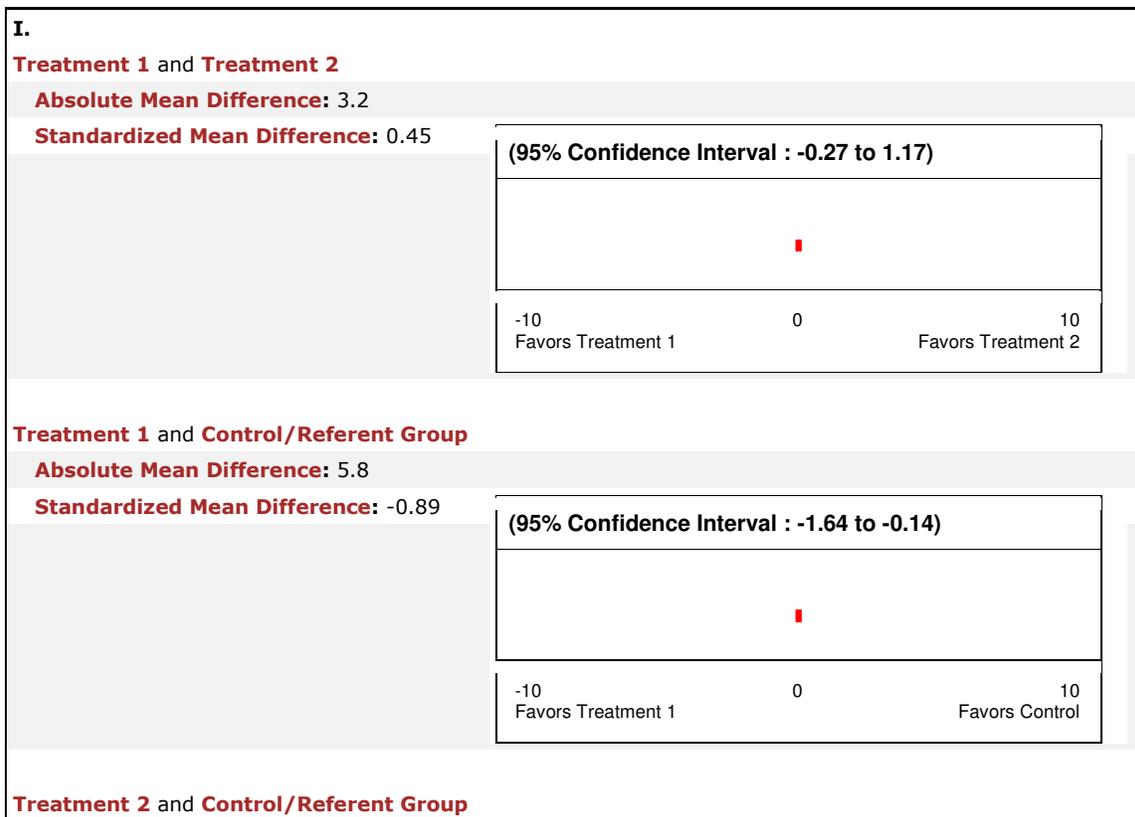
Study Outcomes:

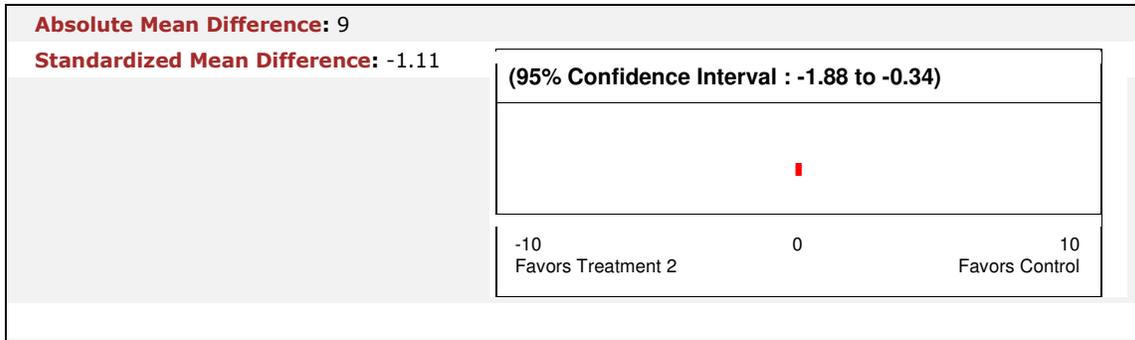
- Impairments
 - * Musculoskeletal
 - * range of motion

Results By Outcome:

Outcome 1 - Continuous

hamstring flexibility (straight leg raise - degrees)





hamstring flexibility (straight leg raise - degrees)

| |
|---|
| <p>II.</p> <p>Treatment 1</p> <p>Number of Subjects: 15</p> <p>End Mean: 36.5</p> <p>End Standard Deviation: 5.2</p> <p>Baseline Mean: 35.3</p> <p>Baseline Standard Deviation: 7.1</p> <p>Treatment 2</p> <p>Number of Subjects: 15</p> <p>End Mean: 39.7</p> <p>End Standard Deviation: 8.6</p> <p>Baseline Mean: 35.0</p> <p>Baseline Standard Deviation: 6.2</p> <p>Treatment R</p> <p>Number of Subjects: 15</p> <p>End Mean: 30.7</p> <p>End Standard Deviation: 7.6</p> <p>Baseline Mean: 30.7</p> <p>Baseline Standard Deviation: 6.8</p> |
|---|

Authors Conclusions: This study found that subjects who received dynamic STM achieved significantly greater increases in hamstring flexibility than the control and classic STM groups.

Reviewer: Kristi Davis **Date last modified:** 09/16/2010

Treatment of 8 pts. With frozen shoulder: A case study series.

Wies J

J Bodywork Mov Ther 2005; 9(1): 58-64

Target Condition:

726.0 - Adhesive capsulitis of shoulder

Element of Patient/Client Management Model: Intervention

Practice Pattern(s):

Musculoskeletal - Pattern D: Impaired Joint Mobility, Motor Function, Muscle Performance, and Range of Motion Associated With Connective Tissue Dysfunction

Design Type: Case Report | Case Series

Study Population: Adults (18-64 years)

Population Location: Outpatient / ambulatory care

Inclusion Criteria: Diagnostic criteria of frozen shoulder were painful, restricted active and passive range of motion of the shoulder, capsular pattern of motion restriction, absence of radiological evidence of glenohumeral joint arthritis, and symptoms present for at least 3 months.

Exclusion Criteria: Local corticosteroid injection to the affected shoulder within the last 3 months or current corticosteroid therapy, neuromuscular disease, shoulder symptoms due to other causes, pregnancy, history of metastatic cancer or diagnosis of cancer within 12 months, unstable angina, insulin dependent diabetes, and prior shoulder surgery.

How were subjects selected: Non-Probability Sample

How many subjects were contacted initially: 8

How many subjects were eligible to participate: 8

How many subjects agreed to participate: 8

Non-clinical characteristics of study participants: 2 men, 6 women.

Clinical characteristics of study participants: Complaint of painful, restricted active and passive range of motion of the shoulder, capsular pattern of motion restriction, absence of radiological evidence of glenohumeral joint arthritis, and symptoms present for at least 3 months.

Blinded Clinicians: No

Blinded Subjects: No

Same person providing treatment and testing measures: Not Provided

Blinded assessor: No

Intention to treat analysis: No

Treatment Group 1 : Treatment consisted of soft tissue mobilization (STM) and a home exercise program (HEP) completed twice a day. STM was directed towards resolving restrictions found during palpation, addressing first superficial layers and progressing to deeper tissues as according to patient tolerance. Specific techniques included effleurage, cross-fibre friction, sustained pressure, and prolonged soft tissue approximation. The HEP included stretching the posterior aspect of the shoulder and isometric strengthening, progressing to resisted exercises through the range of motion, using elastic bands. Patients were asked to demonstrate exercises and to avoid exercises causing pain of greater than 5 out of 10 on a pain scale. Treatment sessions lasted 30 minutes, and patients were seen for an average of 10 (sd=2) over a mean of 14 weeks (sd=3).

Authors Stated Purpose: To determine if therapeutic intervention of soft tissue mobilizations and home exercises resulted in a measurable improvement in shoulder range of motion in patients with frozen shoulder.

Interventions:

- Patient / Client Related Instruction
- Therapeutic Exercise
 - * Flexibility
 - * Muscle strength, power, and endurance training
- Manual Therapy Techniques
 - * massage
 - * mobilization / manipulation
 - * passive range of motion

Study Outcomes:

- Impairments
 - * Musculoskeletal
 - * range of motion

Results By Outcome:

Outcome 1 - continuous

Composite total range of motion - active range of motion for shoulder flexion, abduction and external rotation assessed using a hand-held goniometer according to standard methods.

I.

Composite total range of motion - active range of motion for shoulder flexion, abduction and external rotation assessed using a hand-held goniometer according to standard methods.

II.

Treatment 1

Number of Subjects: 8

End Mean: 284

End Standard Deviation: 20

Baseline Mean: 180

Baseline Standard Deviation: 44

Authors Conclusions: All patients had a significantly improved active range of motion with a mean change in composite range of 105 degrees (SD=44; P=0.00003). Soft tissue mobilizations at specific limitations of the periarticular structures in combination with a simple home exercise program appear to be an effective treatment for the typically recalcitrant problem of frozen shoulder. Patients in this study achieved a greater range of shoulder motion at 14 weeks compared to those treated in a randomized controlled trial (Carette et al., 2003) measured at both 3 and 6 months follow-up. Larger controlled studies may further define the key elements for successful resolution of frozen shoulder.

Treatment of a PT. with cervical radiculopathy using thoracic spine thrust manipulation, soft tissue mobilization, and exercise

Costello M

J Man Manip Ther 2008; 16(3): 129-135

Target Condition:

723.1 - Cervicalgia

Element of Patient/Client Management Model: Intervention

Practice Pattern(s):

Musculoskeletal - Pattern F: Impaired Joint Mobility, Motor Function, Muscle Performance, Range of Motion, and Reflex Integrity Associated With Spinal Disorders

Design Type: Case Report | Case Series

Study Population: Adults (18-64 years)

Population Location: Outpatient / ambulatory care

Inclusion Criteria: Cervical radiculopathy.

Exclusion Criteria: None specified for this case report.

How were subjects selected: Non-Probability Sample

How many subjects were contacted initially: Not Reported

How many subjects were eligible to participate: 1

How many subjects agreed to participate: 1

Non-clinical characteristics of study participants: 41 year old man, equipment operator.

Clinical characteristics of study participants: The patient presented with left neck pain that radiated down his left arm to his elbow. No specific injury to cause this and woke up with neck and arm pain. The pain was described as burning in his neck and a deep ache down his arm which were made worse with activities at work consisting of lifting, shoveling, driving and slouching. His symptoms progressively worsen throughout the day and does have difficulty sleeping at night. Stretching his

chest and massage gives short term relief. Initial pain rating 5/10. Onset 3 to 4 weeks prior to his first physical therapy visit.

Blinded Clinicians: No

Blinded Subjects: No

Same person providing treatment and testing measures: Not Provided

Blinded assessor: No

Intention to treat analysis: Not Provided

Treatment Group 1 : Study consisted of only one patient. The patient had a total of 3 sessions: Day 1, Day 8, and Day 24. He was also given a home exercise program consisting of deep neck flexor strengthening in supine (10 repetitions with a 10 second hold), prone scapular retraction with arms neutral (10 repetitions with a 10 second hold), pectoralis muscle stretching in a doorway (3 repetitions with a 30 second hold), and median nerve slider (5-10 repetitions, pain-free range, 3 times per day). During session 1, the treatment plan consisted of postural education, High velocity thrust to T1-T3 in sitting, high velocity thrust to T3-T5 in supine, soft tissue mobilization to left upper quadrant, and instruction with a home exercise program. Session 2 consisted of review of the home program, and education for full return to work. Session 3 consisted of review of the exercise program and education of posture and proper lifting techniques.

Authors Stated Purpose: The purpose of this case report is to describe the evaluation, clinical decision-making process, and treatment of a patient with cervical radiculopathy.

Interventions:

- Patient / Client Related Instruction
- Therapeutic Exercise
 - * Body mechanics / postural stabilization
 - * Muscle strength, power, and endurance training
- Functional Training in Work, Community and Leisure
 - * Functional training programs
- Manual Therapy Techniques
 - * massage
 - * mobilization / manipulation

Study Outcomes:

- Impairments
 - * Musculoskeletal
 - * muscle performance (strength, power, endurance)
 - * pain
 - * posture
 - * range of motion

- Functional Limitations
 - * Self-care / Home management
 - * ADL
 - * Work
 - * job

Results By Outcome:

No outcomes published for this review

Authors Conclusions: Patients with cervical radiculopathy present with neck and arm pain that may be related to several factors. In this case report, manipulation techniques directed to the thoracic spine, exercise, and soft tissue mobilization were associated with a dramatic improvement in physical impairments, pain, and function for a patient with cervical radiculopathy. Clinicians should consider interventions directed at improving soft tissue mobility of the upper quarter in patients with cervical radiculopathy.

The effect of mechanical load on degenerative soft tissue

Hammer WI

J Bodyw Mov Ther 2008; 12(3): 246-256

Target Condition:

726.1 - Rotator cuff syndrome of shoulder and allied disorders

845 - Sprains and strains of ankle and foot

728.71 - Plantar fascial fibromatosis

Element of Patient/Client Management Model: Intervention

Practice Pattern(s):

Musculoskeletal - Pattern D: Impaired Joint Mobility, Motor Function, Muscle Performance, and Range of Motion Associated With Connective Tissue Dysfunction

Design Type: Case Report | Case Series

Study Population: Adults (18-64 years)

Population Location: Outpatient / ambulatory care

Inclusion Criteria: 3 patients. 1 with plantar fasciosis, 1 with supraspinatus tendiosis, 1 with Achilles tendinosis. These conditions were confirmed with patient history and functional testing.

Exclusion Criteria: None specified.

How were subjects selected: Non-Probability Sample

How many subjects were contacted initially: Not Reported

How many subjects were eligible to participate: Not Reported

How many subjects agreed to participate: 3

Non-clinical characteristics of study participants: 45 year old woman with anterior shoulder pain. 46 year old athletic man with Achilles pain. 50 year old woman with heel pain.

Clinical characteristics of study participants: 45 year old woman with anterior shoulder pain for 4 weeks. She had no past history of shoulder pain. Negative labral tests and positive supraspinatus

test. Pain at end range of shoulder abduction with a painful arc. 46 year old athletic man with 4 month history of gradually increased Achilles pain. The area is stiff in the morning and increases in pain occur at the beginning and end of a run. He has decreased ankle dorsiflexion, shortening of the triceps surae and hamstrings. 50 year old woman with heel pain extending distally to the arch of the foot. Pain has increased over the last 3 months and increases during the day. She has focal tenderness at the medial calcaneal origin of the plantar fascia, decreased ankle dorsiflexion, pes planus, and tightness of the triceps surae and Achilles tendon.

Blinded Clinicians: No

Blinded Subjects: No

Same person providing treatment and testing measures: Yes

Blinded assessor: No

Intention to treat analysis: Yes

Treatment Group 1 : Woman with anterior shoulder pain. Shoulder placed in extension and medial rotation for treatment. 2 visits per week for 5 weeks. Friction massage for the supraspinatus insertion concentrated near tuberosity. Stretches performed after Graston Technique (GT). 2 sets of 15 reps with 4 pounds for rotation exercises performed. GT 5 to the supraspinatus insertion, GT 2 to the musculotendinosus portion of the supraspinatus, and GT 4 to the pectoral fascia and dorsal axillary fascia. Graston protocol followed.

Treatment Group 2 : Man with Achilles pain. 2 times a week for 6 weeks. Graston technique (GT) 6 to anterior medial Achilles tendon, GT 4 to posterior crural fascia, GT 5 to gastroc/soleus, and GT 1 to the hamstrings with active motion. Graston protocol followed.

Treatment Group 3 : Woman with heel pain. 12 treatments for a total of 6 weeks. Advised to get orthotics for shoes. Gastroc/soleus and Achilles tendon were all stretched after Graston technique (GT) was performed. GT 4 to the hamstrings during a contraction, GT 3 to the calcaneal fascia, and GT 6 to distal plantar fascia.

Authors Stated Purpose: To present a form of therapeutic mechanical load, the Graston Technique, in 3 case studies including supraspinatus tendinosis, Achilles tendinosis, and plantar fasciosis.

Interventions:

- Manual Therapy Techniques
 - * mobilization / manipulation

*

Study Outcomes:

- Impairments
 - * Musculoskeletal
 - * muscle performance (strength, power, endurance)
 - * pain
 - * range of motion

- Functional Limitations
 - * Mobility / Movement
 - * standing
 - * walking / ambulation
 - * walking / stair climbing
 - * running
 - * community mobility
 - * lifting
 - * reaching
 - * carrying
 - * Leisure Integration / Reintegration

Results By Outcome:

No outcomes published for this review

Authors Conclusions: Graston Technique can treat and detect areas of degenerated tissue. Graston Technique of load deformation to soft tissue results in elimination of pain and normalized positive functional tests in the cases of these three persons with supraspinatus tendinosis, Achilles tendinosis, and plantar fasciosis.

Treating female infertility and improving gIVF pregnancy rates with a manual physical therapy technique

Wurn BF, Wurn LJ, King CR, Heuer MA, Roscow AS, Scharf ES, Shuster JJ

MedGenMed 2004; 6(2): 51-

Target Condition:

Infertility

Element of Patient/Client Management Model: Intervention

Practice Pattern(s):

Musculoskeletal - Pattern D: Impaired Joint Mobility, Motor Function, Muscle Performance, and Range of Motion Associated With Connective Tissue Dysfunction

Design Type: Clinical Trial, Non-Random

Study Population: Adults (18-64 years)

Population Location: Outpatient / ambulatory care, Health and wellness

Inclusion Criteria: Primary criteria: inability to conceive following a minimum of 12 months of unprotected intercourse of suspected or confirmed pelvic adhesions due to abdominal and/or pelvic surgery, infectious or inflammatory disease, or trauma. History of a condition indicating a strong probability of adhesion formation before receiving treatment. Medical diagnoses included: Infectious/inflammatory disease, Abdominopelvic trauma, Abdominopelvic surgery, Endometriosis, Confirmed pelvic adhesions, Pelvic inflammatory disease. Study II (additional criteria): Intention to undergo IVF therapy within 15 months of the last manual physical therapy treatment date; Decision to use fresh non-donor (own) embryos; Ability to progress to the embryo transfer stage of the ART procedure.

Exclusion Criteria: Patients receiving concurrent infertility therapies during the treatment period.

How were subjects selected: Not Described

How many subjects were contacted initially: Not Reported

How many subjects were eligible to participate: 53

How many subjects agreed to participate: 53

Non-clinical characteristics of study participants: The participants of the study were women between the ages of 25 and 44 years, mean age 33.5 years; multiethnic, but primarily white women, whose infertility ranged from 1 to 20 years.

Clinical characteristics of study participants: All of the participants in the study had a clinically proven or clinically supported suspicion of pelvic adhesions. The most common diagnosis was infectious/inflammatory disease.

Blinded Clinicians: No

Blinded Subjects: No

Same person providing treatment and testing measures: Not Provided

Blinded assessor: Not Provided

Intention to treat analysis: Not Provided

Treatment Group 1 : Natural Fertility Group: Completed a minimum of 20 manual therapy treatment hours (or pregnancy during the course of therapy). This group was evaluated and treatment between May 1998 and February 2002 and received follow-up 1 year after the conclusion of the study or the duration of their pregnancy.

Treatment Group 2 : Pre-IVF Group: Completed a minimum of 10 hours of manual therapy between September 1998 and January 2003. The follow-up after 1 year following treatment confirmed that the patient underwent the embryo transfer phase of IVF therapy and that the patient used fresh non donor eggs/embryos (instead of frozen or donor eggs).

Control/Referent Group R : Treatment Group 2 had a preexisting (historical) control group represented by the 2001 Assisted Reproductive Technology Success Rates: National Summary and Fertility Clinic Reports, released by the Centers for Disease Control and Prevention (CDC) and the American Society for Reproductive Medicine.

Authors Stated Purpose: To assess the effectiveness of site-specific manual soft tissues therapy in (1) facilitating natural fertility and (2) improving in vitro fertilization (IVF) pregnancy rates in women with histories indicating abdominopelvic adhesion formation.

Interventions:

- Manual Therapy Techniques

- * massage
- * mobilization / manipulation

Study Outcomes:

- Pathology/Pathophysiology
 - * other
- Patient / Client satisfaction
 - * other

Results By Outcome:

Outcome 1 - dichotomous

Pregnancy

| | |
|---|--|
| I. | |
| Treatment 1 and Treatment 2 | |
| Odds Ratio: 0.23 | 95% Confidence Interval: 0.07 to 0.78 |
| Risk Ratio: 0.55 | 95% Confidence Interval: 0.33 to 0.93 |
| NNT: 2.91 | |

Pregnancy

| |
|------------------------------|
| II. |
| Treatment 1 |
| Subject with Outcome: 10 |
| Subjects without Outcome: 14 |
| Treatment 2 |
| Subject with Outcome: 19 |
| Subjects without Outcome: 6 |

Outcome 2 - dichotomous

Subsequent full-term delivery

| | |
|---|---|
| I. | |
| Treatment 1 and Treatment 2 | |
| Odds Ratio: 2.40 | 95% Confidence Interval: 0.23 to 24.96 |
| Risk Ratio: 1.14 | 95% Confidence Interval: 0.84 to 1.56 |
| NNT: 9.05 | |

Subsequent full-term delivery

| | |
|-----------------------------|--|
| II. | |
| Treatment 1 | |
| Subject with Outcome: 9 | |
| Subjects without Outcome: 1 | |
| Treatment 2 | |
| Subject with Outcome: 15 | |
| Subjects without Outcome: 4 | |

Authors Conclusions: The data trend across these studies suggests that this innovative site-specific protocol of manual soft-tissue therapy facilitates fertility in women with a wide array of adhesion-related infertility and biomechanical reproductive organ dysfunction. The therapy, designed to improve function by restoring visceral, osseous, and soft-tissue mobility, is a nonsurgical, noninvasive manual technique with no risks and few, if any, adverse side effects or complications. As such, the authors state it should be considered a new adjunct to existing medical infertility treatments.

Treating fallopian tube occlusion with a manual pelvic physical therapy

Wurn BF, Wurn LJ, King CR, Heuer MA, Roscow AS, Hornberger K, Scharf ES

Altern Ther Health Med 2008; 14(1): 18-23

Target Condition:

Fallopian tube occlusion

Element of Patient/Client Management Model: Intervention

Practice Pattern(s):

Musculoskeletal - Pattern D: Impaired Joint Mobility, Motor Function, Muscle Performance, and Range of Motion Associated With Connective Tissue Dysfunction

Design Type: Case Report | Case Series

Study Population: Adults (18-64 years)

Population Location: Outpatient / ambulatory care

Inclusion Criteria: History indicative of abdominopelvic adhesions; documented complete bilateral tubal occlusion or unilateral occlusion if the contralateral tube has been surgically removed before treatment; documented radiologic, surgical, or pregnancy reports after treatment.

Exclusion Criteria: Did not state any additional criteria.

How were subjects selected: Non-Probability Sample

How many subjects were contacted initially: 28

How many subjects were eligible to participate: 28

How many subjects agreed to participate: 28

Non-clinical characteristics of study participants: 28 women; mean age 35.2 years (range of 26-43 years), Caucasian; mean duration of infertility was 4.7 years; and mean body mass

index was 24.3 kg/m².

Clinical characteristics of study participants: Abdominopelvic pain or dysfunction.

Blinded Clinicians: No

Blinded Subjects: No

Same person providing treatment and testing measures: Not Provided

Blinded assessor: No

Intention to treat analysis: Not Provided

Treatment Group 1 : 20 hour series of manual physical therapy treatments. PT accessed some of the deeper structures indirectly by manipulating the peritoneum, uterine and ovarian ligaments, and neighboring structures. Therapist determined which area had decreased mobility and engaged the soft tissue by using their hands to apply a specific force to the restricted structures.

Authors Stated Purpose: Determine the efficacy of a non-invasive, manual soft tissue physical therapy in opening completely blocked fallopian tubes in infertile women with confirmed bilateral occlusion and a history of abdominopelvic adhesions.

Interventions:

- Manual Therapy Techniques
 - * mobilization / manipulation

Study Outcomes:

- Impairments
 - * Musculoskeletal
 - * muscle performance (strength, power, endurance)
 - * pain

Results By Outcome:

Outcome 1 - dichotomous

Unilateral or bilateral patency post-intervention

I.

Unilateral or bilateral patency post-intervention

II.

Treatment 1

Subject with Outcome: 17

Subjects without Outcome: 11

Authors Conclusions: Since truly occluded tubes are not known to reopen spontaneously, the results suggest this non-invasive therapy might be considered as an adjuvant to standard gynecological procedures in treating tubal occlusions.

The effects of soft tissue mobilization on the immature burn scar: results of a pilot study

Silverberg R, Johnson J, Moffat M

J Burn Care Rehabil 1996; 17(3): 252-259

Target Condition:

709.2 - Scar conditions and fibrosis of skin

944 - Burn of wrist(s) and hand(s)

Element of Patient/Client Management Model: Intervention

Practice Pattern(s):

Integumentary - Pattern C: Impaired Integumentary Integrity Associated With Partial-Thickness Skin Involvement and Scar Formation

Design Type: Clinical Trial, Non-Random

Study Population: Adults (18-64 years)

Population Location: Outpatient / ambulatory care

Inclusion Criteria: more than 18 years of age; English speaking; 3 to 12 months past the occurrence of the burn injury; have scars across the wrist that either took more than 3 weeks to heal or required skin grafting; have no history of other upper-extremity pathology

Exclusion Criteria: under 18 years of age, non-English speakers, 3> and 12< month past the occurrence of the burn.

How were subjects selected: Non-Probability Sample

How many subjects were contacted initially: 10

How many subjects were eligible to participate: 10

How many subjects agreed to participate: 10

Non-clinical characteristics of study participants: The study group consisted of five men and five women ranging in age from 22 to 77 years. The mean age for the treatment group was 40 years and 51 years for the Soft Tissue Massage group. Race: 3 Caucasians, 4 African-Americans, and 3 Hispanics.

Clinical characteristics of study participants: The burn and medical data demonstrated the time of injury ranged from 4 to 11 months before the treatment date. The mean total body surface area of the burn injury was 25.7% for the control group and 25.5% for the STM group, with a range of 2.5% to 68%. All five patients in the control group had dorsal wrist burns, whereas two of the patients in the STM group had dorsal wrist burns and three had volar wrist burns.

Blinded Clinicians: No

Blinded Subjects: No

Same person providing treatment and testing measures: No

Blinded assessor: Yes

Intention to treat analysis: Yes

Treatment Group 1 : treatment group received one treatment session of standard physical therapy with 10-15 minutes of soft tissue mobilization

Control/Referent Group R : control group received one treatment session of standard physical therapy without soft tissue massage

Authors Stated Purpose: The purpose of this pilot study was to determine the effects of soft tissue mobilization, scar pliability, and vascularity.

Interventions:

- Manual Therapy Techniques
 - * massage

Study Outcomes:

- Impairments

- * Integumentary
 - * integumentary integrity
 - * wound healing
- * Musculoskeletal
 - * range of motion

Results By Outcome:

Outcome 1 - Continuous

no significant differences were found in total wrist ROM for the STM group compared to the control group but there were significant differences were found in wrist extension and radial deviation in the STM group.

| |
|------------------------------|
| II. |
| Treatment 1 |
| Number of Subjects: 5 |
| End Mean: |
| End Standard Deviation: |
| Baseline Mean: |
| Baseline Standard Deviation: |
| Treatment R |
| Number of Subjects: 5 |
| End Mean: |
| End Standard Deviation: |
| Baseline Mean: |
| Baseline Standard Deviation: |

Outcome 2 - Continuous

Pretreatment and Posttreatment scores for scar pliability and vascularity revealed no appreciable

differences for individual patient or between the STM group and the control group.

II.

Treatment 1

Number of Subjects: 5

End Mean:

End Standard Deviation:

Baseline Mean:

Baseline Standard Deviation:

Treatment R

Number of Subjects: 5

End Mean:

End Standard Deviation:

Baseline Mean:

Baseline Standard Deviation:

Authors Conclusions: The results of this study did not isolate one treatment of soft tissue mobilization (STM) as having more benefit than physical therapy alone; however, the study design may not be sensitive enough to reflect the true efficacy of STM. According to the authors a further study of a larger sample over multiple treatment sessions is necessary to determine the practicality and true efficacy of this treatment technique in burn care. The evaluation and treatment technique used in this study may be applicable in the clinical setting to document restriction within the skin and superficial fascia and to provide a method for monitoring the change.

There is not standard of care widely accepted in orthopedics to best treat relatively minor inversion ankle sprains.

In a review of the literature, the standard treatment for acute ankle sprains varies widely across emergency departments from immediate weight bearing without immobilization to non-weight bearing and application of a plaster cast.⁵ The authors of this study investigated the effect of active exercise in the acute phase following ankle sprains, specifically, to determine the effect of immediate exercise following initial assessment of ankle sprains. Subjects were randomly assigned to an early exercise group or a control group. The early exercise group performed daily exercise for the first week while the control group received no specific instructions to exercise. Following the first week the two groups performed the same ankle rehabilitation program.

One hundred one subjects who presented to an emergency room or therapy clinic with an ankle sprain of less than 7 days duration were included in the study. Subjects were excluded if they were found to have mechanical instability or laxity of the ankle on clinical examination; this was done using the anterior drawer test and the ankle inversion stress test. Other exclusion factors were a fracture, additional injuries besides the ankle sprain, or inability to tolerate cryotherapy. Subjects ranged in age from 16 to 65 years. All subjects were instructed to use ice and compression at home 3 times daily for 20 minutes. Specifically ice was applied for 10 minutes, removed for 10 minutes, then reapplied for 10 minutes. Following these instructions subjects were divided into a treatment group and a control group. The treatment group immediately began exercises at home as described in Table 1; the exercises were performed 3 times a day while the control group received no specific instruction to exercise during the first week. All subjects returned to the clinic one week after the initial visit and received instruction in the same ankle rehabilitation exercises including muscle strengthening, neuromuscular retraining and sports specific exercises. These exercises were performed for 30 minutes in the clinic under therapist supervision for the first time, and then done at home once a week for 4 weeks by both the treatment and control groups.

Outcome measures included the Lower Extremity Functional Score¹, swelling as measured by a modified figure 8 technique², and visual analog pain ratings at rest and with activity. Secondary outcome measures were self reported functional ability using the Karlsson score,¹⁰ physical activity measured with the professional physical activity logger³ (activPAL, PAL technologies, Glasgow) and the Sports Ankle Rating Score.⁴ The professional physical activity logger is a small patch that is worn on the subject's thigh. It can be worn continuously for 7 days. It measures the subject's activity including time spent sitting, standing, and walking. (<http://www.paltech.plus.com/products.htm#activpal>) During a period of 13 months in 2007 and 2008 101 subjects met inclusion criteria and were included in the study; 15 were lost to follow up. Subjects were randomized to the early exercise and control groups and were assessed at initial visit, and then every week for 4 weeks. A final follow up assessment was done at 16 weeks. The average age of participants was 26 years, and the average time from onset of injury to initial evaluation was 53 hours. The results indicated that there was a significant treatment effect in favor of the exercise group at weeks 1 and 2; they had significantly better scores on the lower extremity functional score ($p < .05$) compared to the control group. At weeks 3 and 4 and at the 3 month follow-up

Static Muscle strengthening: EV / IN / PF / DF (with 10 second hold) 5 of each 300 Functional movement pattern (lower limb triple flexion / extension)
30 120 Triceps Surae stretch (with 20 second hold) 3 60 Note: Injured limb is on the right side.
Arrows depict direction of movement/applied force.

Table 1

Active Range of Motion open chain circumduction of the ankle 20 repetitions clockwise and counter clockwise
Performed in 60 seconds Active Range of Motion open chain ankle dorsiflexion and plantar flexion
20 repetitions 60 seconds Ankle isometrics inversion, eversion, dorsiflexion and plantar flexion
5 repetitions each held for 10 seconds 5 Minutes Triple flexion/ extension of the involved extremity
30 repetitions Performed in 2 minutes Calf stretch with the knee extended 20 second hold 3 repetitions One minute

IAOM-US COMMENT

Bleakley et al 2010 article is consistent with the IAOM recommendations for treatment of acute ankle sprains. Active range of motion exercises should be encouraged immediately within the patient's pain tolerance. This study documents the benefit of immediate ankle exercises, without evidence of any adverse response to the treatment. Protecting mild ankle sprains from motion does not seem to be necessary, in fact it has been shown that manual therapy including joint mobilization in the acute phase after ankle sprains can also be beneficial.^{7,8}

Green et al demonstrated that the addition of anterior posterior mobilizations to the talocrural joint resulted

in quicker recovery of full painfree dorsiflexion range of motion and an earlier improvement in stride speed compared to a control group. Another study examined the effect of a manipulation on the ankle in the acute phase after inversion sprain.⁹ The authors performed a dorsal caudal manipulation on ankles that had sustained an inversion trauma at least 5 days earlier. Subjects were screened to be sure there were no fractures, complete rupture of the anterior talofibular ligament, or other contra-indications to manipulation. If joint play testing revealed a hypomobility in the dorsal direction at the talocrural joint the manipulation was performed. The control group received a placebo manipulation. The results demonstrated that immediately after the manipulation the subjects had significantly more even weight distribution on the involved foot in standing as measured by baropodometric evaluation.

The IAOM advocates the use of bracing when the patient presents with a positive anterior drawer test. A positive drawer test indicates rupture of at least the anterior talofibular ligament;¹¹ bracing is required to prevent the anterior drawer during weight bearing activities and therefore to improve the likelihood that the ligament will heal in a manner that prevents chronic ankle laxity. The brace should be worn for at least 6 weeks.

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Effect of warm-ups involving static or dynamic stretching on agility, sprinting, and jumping performance in trained individuals.

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201008 24(8):2001-11 Language: eng Country: United States Tunisian Research Laboratory Sport Performance Optimization, National Center of Medicine and Science in Sports, Tunis, Tunisia. anis.chaouachi@email.ati.tn The objective of the present study was to investigate the effects of static and dynamic stretching alone and in combination on subsequent agility, sprinting, and jump performance. Eight different stretching protocols: (a) static stretch (SS) to point of discomfort (POD); (b) SS less than POD (SS < sport their before recovery of minutes more or 5 least at with activities sport-specific dynamic and warm-up adequate an include should stretching static implement to wish who individuals trained literature, the findings these on Based minutes. 90 approximately lasting session each week a times 6-8 athletes elite level national professional either were Participants performance. after used time amount participants state attributed be may impairments stretch-induced lack The differences. significant other no There sprint. (1.9%) 30-m in condition 0.17) - + (4.28s SS PMID: 19855310

Effects of different strength training methods on postexercise energetic expenditure.

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201008 24(8):2255-60 Language: eng Country: United States Exercise Research Laboratory, Physical Education School, Federal University of Rio Grande do Sul, Porto Alegre, Brazil. Although many studies have demonstrated the efficacy of strength training in increasing energetic expenditure (EE) both during and after training sessions, there are no studies available that analyze the influence on EE of the order in which exercises are performed. Accordingly, the objective of this study was to verify whether the order in which exercises are performed, represented by 2 different methods of strength training (circuit [CT] and pre-exhaustion [PE]), influences the magnitude of the excess postexercise oxygen consumption (EPOC) as well as the EE. Eight nonstrength-trained women participated in the study. Two strength training sessions, with different orders of execution, were held with 7 exercises performed with loads of between 50% and 55% of 1 repetition maximum (1RM). The oxygen uptake was measured before the training sessions, and the difference between the values found was taken as the EPOC of each training session and used in later analysis. No significant differences were found in either the EPOC (CT: 7.19 L +/- 6.17 an. PE: 7.22 +/- 5.84 L) or the postexercise EE (CT: 34.67 +/- 29.76 Kcal, PE: 34.77 +/- 28.15 Kcal) of the 2 training methodologies. Our results indicate that, in strength training, the magnitude of the EPOC is not linked to the order in which the exercises are performed. However, the absence of recovery periods between the sets and the exercises promotes an increase in the magnitude of the EPOC to the levels found in training sessions with higher percentages of 1RM.

Acute effects of high-intensity dumbbell exercise after isokinetic eccentric damage: interaction between altered pain perception and fatigue on static and dynamic muscle performance.

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201008 24(8):2042-9 Language: eng Country: United States Graduate School of Decision Science and Technology, Department of Human System Science, Tokyo Institute of Technology, Tokyo, Japan.
s_akihiro@hotmail.com This study aimed to determine whether high-intensity dumbbell exercise involving both concentric and eccentric contractions would provide a temporary alleviation of delayed-onset muscle soreness (DOMS). It also examined the effect of alleviated muscle soreness on dynamic muscle performance using a stretch-shortening cycle (SSC; peak angular acceleration and velocity of the elbow during both lowering and concentric phases) to provide indirect evidence that DOMS contributes to the dynamic performance decrement after eccentric injury. Thirteen untrained adults performed 30 maximal isokinetic eccentric contractions of the elbow flexors to induce eccentric damage. Five sets of arm curls using a dumbbell (equivalent to 70% of isometric maximal voluntary contraction) were then performed until failure on days 1, 2, 3, and 5 of recovery. Muscle soreness significantly decreased after each session of dumbbell exercise ($p = 0.001$). Isometric strength further decreased immediately after dumbbell exercise, indicating muscle fatigue ($p < 0.001$). Dynamic performance variables were less affected by fatigue, however, with performance being reduced only for peak lowering velocity ($p < 0.001$). Other measures of dynamic performance were relatively constant after dumbbell exercise, particularly on days 2 and 3 when soreness was greatest. It was concluded that high-intensity concentric/eccentric dumbbell exercise was able to temporarily alleviate DOMS and that this reduction in soreness served to counter the effect of peripheral muscle fatigue during dynamic activities. Practical applications of this study are that after eccentric damage, alleviation of muscle soreness through an optimal warm-up may be helpful to temporarily recover dynamic muscle performance. Free-weight loading is one suggested technique to temporarily manage DOMS.

The effect of sprinting after each set of heavy resistance training on the running speed and jumping performance of young basketball players.

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201008 24(8):2102-8 Language: eng Country: United States Laboratory of Coaching and Sport Performance, Department of Physical Education and Sport Science, Aristotle University of Thessaloniki, Thessaloniki, Greece. kotzaman@phed.auth.gr The purpose of this study was to investigate the effect of a 10-week heavy resistance combined with a running training program on the strength, running speed (RS), and vertical jump performance of young basketball players. Twenty-six junior basketball players were equally divided in 2 groups. The control (CON) group performed only technical preparation and the group that followed the combined training program (CTP) performed additionally 5 sets of 8-5 repetition maximum (RM) half squat with 1 30-m sprint after each set. The evaluation took place before training and after the 5th and 10th weeks of training. Apart from the 1RM half squat test, the 10- and 30-m running time was measured using photocells and the jump height (squat, countermovement jump, and drop jump) was estimated taking into account the flight time. The 1RM increased by 30.3 +/- 1.5% at the 10th week of training for the CTP group ($p < 0.05$), whereas the CON group showed no significant increase (1.1 +/- 1.6%, $p > 0.05$). In general, all measured parameters showed a statistically significant increase after the 5th and 10th weeks ($p < 0.05$), in contrast to the CON group ($p > 0.05$). This suggests that the applied CTP is beneficial for the strength, RS, and jump height of young basketball players. The observed adaptations in the CTP group could be attributed to learning factors and to a more optimal transfer of the strength gain to running and jumping performance.

Preexercise static stretching effect on leaping performance in elite rhythmic gymnasts.

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201008 24(8):1995-2000 Language: eng Country: United States Department for Health Sciences, University of Molise, Campobasso, Italy. The aim of this study was to examine the acute effects of static stretching (SS) on technical leaps performance in rhythmic gymnastics. Thirty-eight gymnasts (age 14.13 +/- 3.2 years), competing at the international and national levels, performed vertical jumps (squat jump, countermovement jump, hopping test [HT]) and technical leaps (split leap with leg stretched [SL], split leap with ring [RG], split leap with back bend of the trunk [BBT]) assessed in 2 different conditions: after SS and after their usual typical warm-up (TWU) as control conditions. Jumps and leaps flight time (FT) and ground contact time (GCT) parameters were evaluated by OptoJump. Leap performance was simultaneously evaluated by scores awarded by judges. For each dependent variable, the effect of warm-up condition (TWU and SS) was examined by a paired-sample t-test. A multiple regression analysis determined the amount of variance in judges' scores from the FT and GCT variables. Results revealed that vertical jumps FT was not affected by SS warm-up. Ground contact time of HT significantly increased after SS warm-up ($p < 0.01$). Static stretching reduced significantly ($p < 0.01$) the technical leap FT (decrements: SL = 7.1%, RG = 7.2%, and BBT = 6.4%). The results showed no significant effects of SS on technical leaps GCT. Static stretching significantly reduced ($p < 0.001$) the scores awarded by the judges. The FT was the main predictor of scores of the 3 technical leaps accounting for 9-30% of variance in both warm-up conditions. This study suggests that SS before leaping performance may negatively affect rhythmic gymnastics judges' evaluation.

Comparing preseason frontal and sagittal plane plyometric programs on vertical jump height in high-school basketball players.

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201008 24(8):2109-14 Language: eng Country: United States School of Exercise and Nutritional Sciences Kinesiology Graduate Program, San Diego State University, San Diego, California, USA. king-jeffrey@cox.net The primary purpose of this study was to evaluate whether frontal plane (FP) plyometrics, which are defined as plyometrics dominated with a lateral component, would produce similar increases in vertical jump height (VJH) compared to sagittal plane (SP) Plyometrics. Thirty-two junior varsity and varsity high-school basketball players participated in 6 weeks of plyometric training. Players participated in either FP or SP plyometrics for the entire study. Vertical jump height was measured on 3 occasions: preintervention (baseline), at week 3 of preparatory training, and at week 6 of training. Descriptive statistics were calculated for VJH. A 2-way analysis of variance (ANOVA) with repeated measures was used to test the difference in mean vertical jump scores using FP and SP training modalities. Results showed a significant effect over time for vertical jump ($p < 0.001$). Moreover, a significant time by protocol interaction was noted ($p < 0.032$). A 1-way ANOVA demonstrated that only the SP group demonstrated improvements over time, in VJH, $p < 0.05$. The FP group did not improve statistically. The data from this study suggest that FP plyometric training did not have a significant effect on VJH and significant improvement in VJH was seen in subjects participating in SP plyometrics thus reinforcing the specificity principle of training. However, coaches should implement both types of plyometrics because both training modalities can improve power and quickness among basketball players.

Interpreting normalized and nonnormalized data after acute static stretching in athletes and nonathletes.

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201008 24(8):1988-94 Language: eng Country: United States Department of Health, Wayne State College, Wayne, Nebraska, USA. taeveto1@wsc.edu The purpose of this study was to determine the effect of acute static stretching on torque and electromyography (EMG) in female athletes (ATHs) and nonathletes (NONATHs) using both normalized (NORM) and nonnormalized (NONNORM) data. Fifteen ATHs recruited from women's National Collegiate Athletic Association Division II varsity basketball and volleyball teams were paired to 14 NONATHs. Electromyography (microV) was detected over the rectus femoris during isokinetic leg extensions at 60 and 300 degrees .s before (PRE) and after (POST) static stretching. There was a significant main effect for torque (mean +/- SD PRE = 81.9 +/- 22.7 Nxm; POST = 77.0 +/- 21.9 Nxm) and EMG amplitude (PRE = 767.6 +/- 288.6 microV; POST = 664.2 +/- 219.3 microV) for PRE compared to POST. For the NORM data, there was a significant decrease in torque for the NONATHs (mean +/- SD PRE = 73 +/- 12 Nxm; POST = 67 +/- 12 Nxm) but no significant difference for the ATHs (mean +/- SD PRE = 65 +/- 11 Nxm; POST = 66 +/- 8 Nxm). The NONNORM data indicated that both the ATHs and NONATHs displayed a stretching-induced decrease in torque that may be manifested in a decreased ability to activate the muscle. The NORM data revealed the NONATHs but not the ATHs were hindered in their ability to produce torque as a result of the stretching. Coaches and ATHs may want to carefully consider whether to include stretching in their precompetition routine. When reading the literature, the practitioner should consider the manner in which the data were calculated and analyzed (NORM or NONNORM) because it may affect the conclusions of the study.

An investigation into the effects of different warm-up modalities on specific motor skills related to soccer performance.

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201008 24(8):2096-101 Language: eng Country: United States Department of Sport and Exercise Science, School of Physical Education and Sports Sciences, University of Bedfordshire, Bedfordshire, United Kingdom. iain.fletcher@beds.ac.uk The aim of this study was to investigate the effect of different warm-up stretch modalities on specific high-speed motor capabilities important to soccer performance. Twenty-seven male soccer players performed 3 warm-up conditions, active warm-up (WU), WU with static stretching (SPS), and WU with dynamic stretching (ADS). Heart rate, countermovement jump, 20-m sprint, and Balsom agility tests were performed after each intervention. Vertical jump heights were significantly greater ($p < 0.01$) in the WU and ADS conditions compared to those in the SPS trial. The 20-m sprint and agility times showed that the SPS condition was significantly slower ($p < 0.01$) than the WU and ADS conditions, with the ADS trial being significantly faster ($p < 0.05$) than the WU condition. Heart rate was significantly higher ($p < 0.01$) for participants post-WU and -ADS trials compared to the SPS condition. These findings suggest that the superior performance of the dynamic stretch and warm-up-only conditions compared to the static stretch condition may be linked to increases in heart rate. The reasons for the dynamic stretch trial superiority compared to the warm-up condition are less clear and as yet to be established. We recommend for optimal performance, specific dynamic stretches be employed as part of a warm-up, rather than the traditional static stretches.

Effects of weightlifting and breathing technique on blood pressure and heart rate.

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201008 24(8):2179-83 Language: eng Country: United States Movement Science Department, Grand Valley State University, Allendale, Michigan, USA. leple013@umn.edu Weight training is a method commonly used to increase strength. The purpose of this investigation was to examine the effect of breathing technique during weight training on heart rate (HR) and blood pressure (BP). After completing a health history questionnaire, 30 subjects (16 men: 21.25 +/- 1.21 years, 180.26 +/- 2.36 cm, 84.31 +/- 19.32 kg; and 14 women: 21.29 +/- 2.37 years, 170.08 +/- 2.15 cm, 137.36 +/- 62.31 kg) were familiarized and tested for an estimated 1 repetition maximum, on the chest press and leg press lifts using each of the 2 breathing techniques, hold breath (HB), and controlled breathing. Lifts were examined using each breathing technique with 1 set of 10 repetitions on separate days. Data were collected during the push phase on average of 3.72 times per set and again at 1 and 5 minutes post lift. Resting, during lift (peak, average); 1-minute and 5-minute post lift BP; and HR values were measured using the NIBP100A noninvasive BP system (Biopac Systems, Inc), for both breathing technique within each lift. The HB technique posted higher but statistically insignificant ($p < 0.05$) values for systolic BP ($p = 0.420$), diastolic BP ($p = 0.531$), and HR ($p = 0.713$) than the controlled breath technique. The HB technique used in this investigation produced minimal elevations in HR and BP and appears to be safe when performing the chest press and leg press lifts at a moderate resistance. Education on proper weight training techniques can help limit unwanted risks during these exercises.

Training affects knee kinematics and kinetics in cutting maneuvers in sport.

Medicine and science in sports and exercise [Add to My Journals List](#) 

201008 42(8):1535-44 Language: eng Country: United States University of Western Australia, Perth, Australia. PURPOSE: The current study examined how different training affects the kinematics and applied moments at the knee during sporting maneuvers and the potential to reduce loading of the anterior cruciate ligament (ACL). The training programs were 1) machine weights, 2) free weights, 3) balance training, and 4) machine weights + balance training. METHODS: Fifty healthy male subjects were allocated either to a control group or to one of four 12-wk training programs. Subjects were tested before and after training, performing running and cutting maneuvers from which knee angle and applied knee moments were assessed. Data analyzed were peak applied flexion/extension, varus/valgus, and internal/external rotation moments, as well as knee flexion angles during specific phases of stance during the maneuvers. RESULTS: The balance training group decreased their peak valgus and peak internal rotation moments during weight acceptance in all maneuvers. This group also lowered their flexion moments during the sidestep to 60 degrees . Free weights training induced increases in the internal rotation moment and decreases in knee flexion angle in the peak push-off phase of stance. Machine weights training elicited increases in the flexion moment and reduced peak valgus moments in weight acceptance. Machine weights + balance training resulted in no changes to the variables assessed. CONCLUSIONS: Balance training produced reductions in peak valgus and internal rotation moments, which could lower ACL injury risk during sporting maneuvers. Strength training tended to increase the applied knee loading known to place strain on the ACL, with the free weights group also decreasing the amount of knee flexion. It is recommended that balance training be implemented because it may reduce the risk of ACL injury.

Multicenter randomized controlled trial to evaluate the effect of home-based exercise on patients with chronic low back pain: the Japan low back pain exercise therapy study.

Spine [Add to My Journals List](#) 

20100800 35(17):E811-9 Language: eng Country: United States Department of Orthopaedic Surgery, Saitama Medical University, Saitama, Japan. oshirado@saitama-med.ac.jp STUDY DESIGN: Prospective, randomized, controlled trial. OBJECTIVE: To investigate the effectiveness of home-based exercise on pain, dysfunction, and quality of life (QOL) in Japanese individuals with chronic low back pain (CLBP). SUMMARY OF BACKGROUND DATA: Exercise therapy is a widely used treatment for CLBP in many countries. The studies on its effectiveness have been performed only in Western industrialized countries. The existence of cross-cultural differences and heterogeneity of patients in each country may influence the outcome of interventions for CLBP. Data that would enable researchers to compare the effectiveness of interventions between widely different societies is lacking. METHODS: A total of 201 patients with nonspecific CLBP were randomly assigned to either the control or exercise therapy group: 89 men and 112 women with a mean age of 42.2 years. The control group was treated with nonsteroidal anti-inflammatory drugs (NSAIDs), and the exercise group performed trunk muscle strengthening and stretching exercises. The primary outcome measures were pain intensity (visual analogue scale) and dysfunction level (Japan Low back pain Evaluation Questionnaire [JLEQ] and Roland-Morris Disability Questionnaire [RDQ]) over 12 months. The secondary outcome measure was FFD (Finger-floor distance). Statistical analysis was performed using Wilcoxon signed-ranks and Mann-Whitney U tests, and estimation of the median with 95% CI was calculated. RESULTS: In both groups, significant improvement was found at all points of follow-up assessment. However, JLEQ and RDQ were significantly more improved in the exercise group compared to the control group (P = 0.021 in JLEQ, P = 0.023 in RDQ). The 95% CI for the difference of medians of the change ratio between exercise and NSAID groups, [Exercise] - [NSAID], was -0.25 to -0.02 in JLEQ, -0.33 to 0.00 in RDQ, and -0.20 to 0.06 in visual analogue scale. CONCLUSION: The home-based exercise prescribed and monitored by board-certified orthopedic surgeons was more effective than NSAIDs for Japanese patients with CLBP.

