

SportsMedUpdate

ACUPUNCTURE FOR CHRONIC LOW BACK PAIN IN OLDER PATIENTS: A RANDOMISED, CONTROLLED TRIAL

Meng CF, Wang D, Ngeow J, et al. *Rheumatology* 2003;42:1508-17

Background:

Although acupuncture has been used in the treatment of low back pain (LBP) there is inconclusive data on the beneficial effects of acupuncture for back pain, particularly in elderly patients.

Research question/s:

Is acupuncture an effective and safe adjunctive treatment to standard therapy for chronic LBP in older patients?

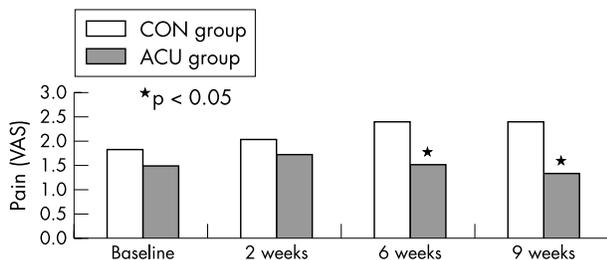
Methodology:

Subjects: 55 subjects (LBP > 12 wks, age > 60 yrs) (no tumour, infection, fracture or neurological symptoms).

Experimental procedure: 47/55 subjects completing the trial were randomised to a control group (CON = 23) receiving usual care (NSAIDs, muscle relaxants, paracetamol and back exercises) and an acupuncture group (ACU = 24) receiving usual care (as CON group) and acupuncture with electrical stimulation 2/week for 5 weeks. The Roland Disability Questionnaire (RDQ) was administered at 0, 2, 6, and 9 weeks.

Measures of outcome: Mean RDQ score, pain (VAS), global transition score (GTS), side effects (frequency).

Main finding/s:



RDQ score: There was a significant decrease in the RDQ score at week 6 in the ACU group (4.1 ± 3.9) compared with the CON group (0.7 ± 2.8) ($p = 0.001$). After 4 weeks of stopping treatment, this effect was maintained (ACU score 3.5 ± 4.4 from baseline, CON = 0.43 ± 2.7) ($p = 0.007$).

Global transition score: The GTS was higher in the ACU group (3.7 ± 1.2) than the CON group (2.5 ± 0.9) ($p < 0.001$), indicating greater improvement in the ACU group.

Side effects: Fewer subjects in the ACU vs the CON group had medication related side effects.

Conclusion/s:

Bi-weekly treatment with acupuncture for 5 weeks added to usual treatment is safe and effective (reduced pain and improved function) in elderly patients with LBP.

Evidence based rating: 7/10 **Clinical interest rating:** 6.5/10

Type of study: Randomised controlled clinical trial

Methodological considerations: Generally well conducted, no placebo control, small sample sizes, increased drop out rate, possible treatment bias (use of two different therapists), short term outcome measures

Keywords: Acupuncture, chronic low back pain, elderly patients

DIAGNOSTIC AND PROGNOSTIC VALUE OF CLINICAL FINDINGS IN 83 ATHLETES WITH POSTERIOR THIGH INJURY. COMPARISON OF CLINICAL FINDINGS WITH MRI DOCUMENTATION OF HAMSTRING MUSCLE STRAIN

Verrall GM, Slavotinek JP, Barnes PG, et al. *Am J Sports Med* 2003;31:969-73

Background:

The possible contribution of the clinical features of posterior thigh injuries to the accurate diagnosis and prognosis of hamstring muscle strain injury is not well understood.

Research question/s:

Can the clinical features of posterior thigh injury be used to diagnose hamstring muscle strain and predict the duration of absence from competition?

Methodology:

Subjects: 83 Australian rules football players with posterior thigh pain and tenderness.

Experimental procedure: All of the players were assessed within 18 hours after injury, and the clinical features of posterior thigh injury, timing of injury, and playing days lost were recorded for two playing seasons. Magnetic resonance imaging (MRI) 2-6 days post-injury was used to confirm hamstring muscle injury.

Measures of outcome: Anatomical distribution of hamstring injuries, onset, warm up and MRI findings, relationship of pain to MRI findings. **Main finding/s:** Anatomical distribution: injuries occurred almost equally in the upper ($n = 29$), middle ($n = 30$), and lower ($n = 24$) third, mostly in the biceps femoris ($n = 55$), semitendinosus ($n = 30$), and the semimembranosus ($n = 10$).

Onset, warm up: Most injuries were sudden onset (91%) and occurred after a warm up period (84%).

MRI findings: MRI confirmed hamstring injury in 68 (82%) subjects. Hamstring muscle injury confirmed by MRI were related to greater pain, and associated with a longer absence from competition (mean, 27 days).

Conclusion/s:

Hamstring injuries in Australian rules football players: 1, present acutely with sudden onset, pain, and tenderness (83%); 2, can be diagnosed by MRI (82%); and 3, the positive diagnosis using MRI and pain correlates with days lost from competition.

Evidence based rating: 5.5/10 **Clinical interest rating:** 8/10

Type of study: Case series

Methodological considerations: Descriptive case series

Keywords: Hamstring, muscle, injury, posterior thigh, strain, MRI

PATELLOFEMORAL KINEMATICS DURING WEIGHT BEARING AND NON-WEIGHT BEARING KNEE EXTENSION IN PERSONS WITH LATERAL SUBLUXATION OF THE PATELLA: A PRELIMINARY STUDY

Powers CM, Ward SR, Fredericson M, et al. *J Orthop Sports Phys Ther* 2003;33:677-85

Background:

Patellofemoral joint kinematics during dynamic movement in the weight bearing (WB) and non-weight bearing (NWB) condition have not been quantified in patients with lateral subluxation of the patella.

Research question/s:

Do patellofemoral joint kinematics differ during WB (closed chain) and NWB (open chain) knee extension in persons with lateral subluxation of the patella?

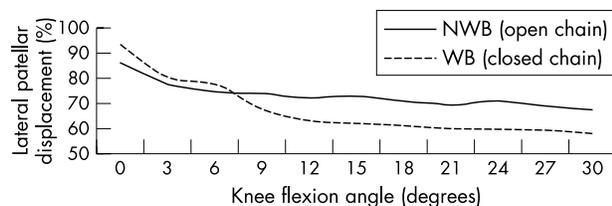
Methodology:

Subjects: Six females with patellofemoral pain and lateral subluxation of the patella.

Experimental procedure: Axial images of the patellofemoral joint during extension of the knee (from 45° to 0°) were obtained using kinematic MRI in all of the subjects during NWB (5% body weight resistance) and WB (unilateral squat) conditions.

Measures of outcome: Patellar displacement (medial/lateral), patellar tilt, femoral, and patella rotations relative to an external reference system were obtained at 3° increments during knee extension.

Main finding/s:



Patellar tilt: There were no significant differences in lateral patellar tilt between WB and NWB ($p = 0.065$).

Femoral rotation: Internal femoral rotation was significantly greater in WB compared with NWB during knee extension from 18° to 0°.

Patellar rotation: Lateral patellar rotation was significantly greater in NWB compared with WB throughout the range of motion.

Conclusion/s:

Lateral patellar displacement and lateral patellar tilt was more pronounced during NWB (open chain) knee extension compared with WB (closed chain) knee extension in persons with lateral patellar subluxation.

Evidence based rating: 7/10 **Clinical interest rating:** 7/10

Type of study: Controlled clinic trial (laboratory)

Methodological considerations: Well conducted study, small sample size, results can not be generalised

Keywords: Magnetic resonance imaging, patellar tracking, patello-femoral joint

INJURY RATES IN RUGBY LEAGUE FOOTBALL: IMPACT OF CHANGE IN PLAYING SEASON

Gissane C, Jennings D, Kerr K. *et al. Am J Sports Med* 2003;**31**:954-8

Background:

The incidence of injuries in professional rugby league is high, and there is anecdotal evidence that by moving the playing season from the autumn and winter months to the spring and summer increases injury risk.

Research question/s:

Does changing the playing season from winter to summer increase the risk of injury in rugby league?

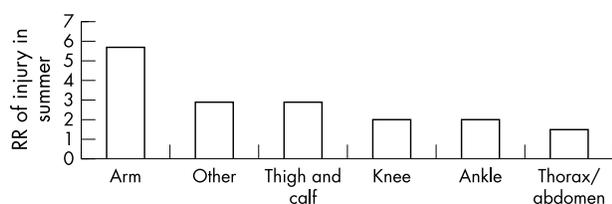
Methodology:

Subjects: 128 rugby players (summer (SUM) = 43; winter (WIN) = 85) (144 summer games; 138 winter games).

Experimental procedure: All of the injuries incurred by all of the players during match play were recorded over nine seasons. Each injury was classified according to site, type, player position, activity at the time of injury, and number of games missed as a result of injury.

Measures of outcome: Incidence of injury per 1000 hours play (4876 player hours: winter, 2386; summer, 2490).

Main finding/s:



The overall injury risk (injuries/1000 hours) was 30.18 in WIN, and 60.25 in SUM (relative risk (RR) 2.0, $p < 0.0001$).

The RR of injury types in SUM was higher for haematomas (4.07), fractures/dislocation (3.84), other injuries (2.88), muscle injuries (2.13), joint sprains (1.88), confusion (1.67), and concussion (1.20).

Conclusion/s:

The risk of injury to players in a professional rugby league club increases two-fold as a result of changing from a winter to a summer season, possibly as a result of environmental factors. Factors, such as increased conditioning levels, which have been a direct consequence of players moving to full time professionalism, may have increased injury potential.

Evidence based rating: 7/10 **Clinical interest rating:** 8/10

Type of study: Prospective cohort study

Methodological considerations: Confounding factors (such as professionalism, conditioning) could have influenced results

Keywords: Rugby, injury, risk, summer, winter, season

FACTORS AFFECTING BONE LOSS IN FEMALE ENDURANCE ATHLETES.

Braam LAJM, Knape MHJ, Geusens MP, *et al. Am J sports Med* 2003;**31**:889-95

Background:

Low bone mass can lead to stress fractures in female athletes, indicating that maintenance of bone mass is important. The role of vitamin K supplementation in increasing bone mass has been suggested.

Research question/s:

What is the rate of bone loss in healthy female athletes and what are the effects of oestrogen and vitamin K supplementation on bone loss?

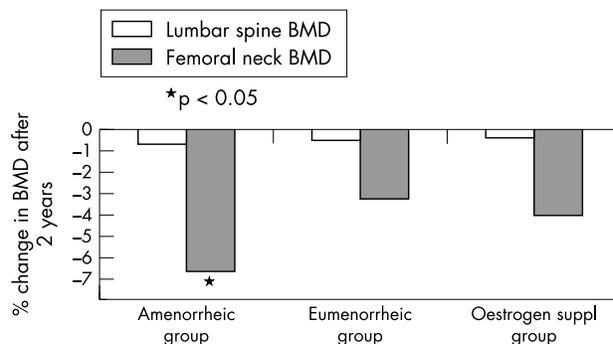
Methodology:

Subjects: 115 female endurance athletes.

Experimental procedure: Athletes were classified into amenorrhoeic (AM), eumenorrhoeic (EM), or oestrogen supplemented (SUP) groups, and were then randomised to receive either placebo (Con) or vitamin K1 (VitK). Bone mineral densities (BMD) of the femoral neck and lumbar spine were measured at baseline and after 2 years in all of the subjects.

Measures of outcome: Bone mineral density (g/cm^2).

Main finding/s:



Supplementation with vitamin K did not affect the rate of bone loss.

Bone mineral density in the lumbar spine remained constant, but bone density in the femoral neck had decreased significantly after 2 years in all three subgroups, and the decrease was higher in amenorrhoeic ($-6.5\% \pm 4.0\%$) than in eumenorrhoeic ($-3.2\% \pm 4.1\%$) and oestrogen supplemented athletes ($-3.9\% \pm 3.1\%$).

Conclusion/s:

The rate of bone loss in the femoral neck over a 2 year period in female athletes undergoing high intensity training is high with neither oestrogen nor vitamin K supplementation preventing the bone loss.

Evidence based rating: 7.5/10 **Clinical interest rating:** 8/10

Type of study: Prospective cohort study

Methodological considerations: High dropout rate of participants, no non-athletic control group

Keywords: Bone mineral density, female, athletes, oestrogen, vitamin K

EFFECTS OF ARTHRITIS EXERCISE PROGRAMMES ON FUNCTIONAL FITNESS AND PERCEIVED ACTIVITIES OF DAILY LIVING MEASURES IN OLDER ADULTS WITH ARTHRITIS

Suomi R, Collier D. *Arch Phys Med Rehabil* 2003;**84**:1589-94

Background:

The possible benefits of regular exercise in patients with arthritis on muscle (isometric) strength, range of motion (ROM), and particularly functional fitness and activities of daily living (ADL) has not been shown.

Research question/s:

Do aquatic and on-land exercise programmes improve functional fitness and perceived ability to perform activities of ADL measures in older adults with osteo- and rheumatoid arthritis?

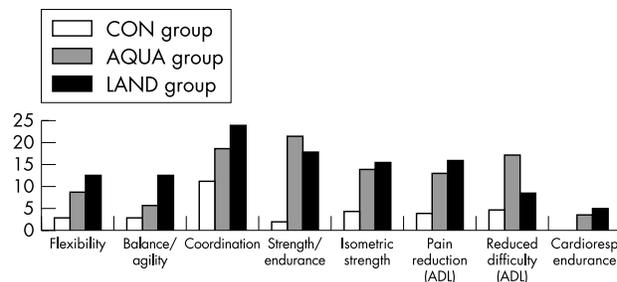
Methodology:

Subjects: 30 men and women with arthritis (osteoarthritis, n = 22; rheumatoid arthritis, n = 8).

Experimental procedure: Subjects were randomly assigned into an aquatic exercise (AQUA = 10), on-land exercise (LAND = 10), or control group (CON = 10). Testing took place on an indoor track facility; exercise programmes (8 week on-land and aquatic exercise programme, 2/week for 45 min) were conducted in the community.

Measures of outcome: Functional fitness (flexibility, coordination, agility and dynamic balance, strength and endurance, cardiorespiratory endurance), ADLs, and hand held dynamometry were assessed before and after an 8 week exercise programme.

Main finding/s:



Subjects in the AQUA and LAND but not the CON group showed significant improvements on 9 of 12 functional fitness, 3 of 4 ADLs, and 7 of 8 hand held isometric strength tests after their respective exercise programmes.

Conclusion/s:

Both an aquatic and a land based 8 week exercise programme are effective in improving functional physical fitness and perceived ability to perform activities of daily living in older adults with osteo- and rheumatoid arthritis.

Evidence based rating: 7.5/10 **Clinical interest rating:** 8/10

Type of study: Randomised controlled clinical trial

Methodological considerations: Small sample sizes

Keywords: Activities of daily living, arthritis, physical fitness, rehabilitation

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