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In a case series, regenerative injection therapy using 12.5% dextrose and lidocaine, reduced pain and facilitated return to sports in athletes with chronic groin pain that did not respond to other conservative treatment

Title: Regenerative injection of elite athletes with career-altering chronic groin pain who fail conservative treatment Authors: Topol GA, Reeves KD Reference: Am J Phys Med Rehabil 2008; 87(11): 890-902 Type of study: Case series

Keywords: groin injury, treatment, injection, dextrose

EB Rating: 5/10

CI Rating: 7/10

Category: Injury / Groin

Background: Regenerative injection therapy (also known as prolotherapy) involves the injection of growth factors or growth factor promoting substances to treat soft tissue sports injuries

Research question/s: Does regenerative injection therapy improve pain and facilitate return to sport in athletes with chronic groin pain?

Methodology:

- Subjects: 72 elite athletes (39 rugby, 29 soccer, 4 other) with chronic (mean 11 months, 3-60 months) groin or lower abdominal pain with failed conservative treatment
- Experimental procedure: All the subjects were assessed and then underwent a course (1-6, mean of 3 treatments) of regenerative injection therapy (monthly injections of 12.5% dextrose in 0.5% lidocaine into the tender areas of the abdominal or adductor attachments on the pubis). Following injection the nociceptive source was confirmed by repetition of resistive now pain-free testing, 5 minutes after the injection. Athletes followed a specific graded treatment program following injection therapy. Pain (Sports VAS and Nirschl pain scale) was measured before and after treatment and at a mean follow-up of 26 months
- Measures of outcome: Pain (VAS), return to unrestricted sport (months)

Main finding/s:



• Return to sport: Only 6 athletes did not improve and the remaining 66 returned to unrestricted sport after a mean of 3 months (range 1-5 months)

Conclusion/s:

 In a case series, regenerative injection therapy using 12.5% dextrose and lidocaine, reduced pain and facilitated return to sports in athletes with chronic groin pain that did not respond to other conservative treatment

Methodological considerations:

Case series, no control group, subjective measures of outcome

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In a small randomized, clinical trial, radiofrequency microtenotomy improved pain and function in a similar fashion to the release operation for chronic elbow tendinosis

Title: Radiofrequency microtenotomy. A promising method for treatment of recalcitrant lateral epicondylitis **Authors:** Meknas K, Odden-Miland A, Mercer JB, Castillejo M, Johansen O **Reference:** Am J Sports Med 2008; 36(10): 1960-1965

Type of study: Randomized controlled trial

Keywords: tendinosis, epicondylitis, microtenotomy, infrared thermography

EB Rating: 7/10

CI Rating: 7/10

Background: A variety of treatment modalities for chronic lateral epicondylopathy (tennis elbow) have been used including surgical extensor tendon release – radiofrequency microtenotomy has been suggested as an alternate treatment to extensor tendon release

Research question/s: Does radiofrequency microtenotomy improve pain and function more than extensor tendon release and repair in patients with chronic lateral epicondylopathy (lateral elbow tendinosis)?

Methodology:

- Subjects: 24 patients with chronic (> 12 months) lateral elbow tendinosis
- Experimental procedure: All the subjects were assessed and then randomized into either an extensor tendon release and repair group (SURG=11) or a microtenotomy group (TENOT=13). Dynamic infrared thermography (DIRT) was used firstly as an objective method to verify the diagnosis and secondly to document the outcome 3 months after the interventions. Assessments were conducted before and after 3, 6 and 12 weeks following intervention and included function (Mayo Elbow Performance Score MEPS), pain (VAS), and grip strength
- Measures of outcome: Pain (VAS), function (MEPS), grip strength (kg)

Main finding/s:



• Functional score: The functional score increased in both groups, with no difference between groups

Conclusion/s:

• In a small randomized, clinical trial, radiofrequency microtenotomy improved pain and function in a similar fashion to the release operation for chronic elbow tendinosis

Methodological considerations:

Small sample size

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In female adolescent soccer players, implementing the "11" injury prevention program during warm-up for a 10 week period, does not affect any performance parameters compared with a control group

Title: Performance aspects of an injury prevention program: a ten-week intervention in adolescent female football players

Authors: Steffen K, Bakka HM, Myklebust G, Bahr R Reference: Scand J Med Sci Sports 2008; 18: 596-604 Type of study: Randomized, controlled, clinical trial Keywords: soccer, injury, prevention program, performance

EB Rating: 8/10

CI Rating: 7/10

Background: In order to prevent injuries in soccer, an exercise program, the "11", has been designed to reduce injury risk – however, the effects of this program on soccer performance has not been evaluated **Research question/s:** Does the "11" program, which has been designed to reduce injuries, affect soccer performance after 10 weeks of training?

Methodology:

- Subjects: 34 adolescent female football players (17.1+0.8 yrs)
- Experimental procedure: All the subjects were assessed using performance tests and then randomly assigned to either an intervention training program (11 group=18, 15-min program consisting of 10 exercises for core stability, lower extremity strength, balance and agility) or a control group (CON=16). Performance tests included the following: muscle strength (isokinetic and isometric strength for the quadriceps and hamstrings, isometric hip adduction and abduction strength), explosive power (vertical jump tests), sprint running and soccer skill tests
- Measures of outcome: Performance test variables (before and after 10 weeks)

Main finding/s:



• There were no significant difference between the 11 and the CON groups in any of the performance parameters after 10 weeks

Conclusion/s:

• In female adolescent soccer players, implementing the "11" injury prevention program during warm-up for a 10 week period, does not affect any performance parameters compared with a control group

Methodological considerations:

Well conducted study

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Increased exercise intensity (running pace) is associated with reduced use of anti-hypertensive, cholesterol-lowering and anti-diabetic medication use in male and female runners, and this is independent of exercise volume and cardiorespiratory fitness

Title: Relationship of running intensity to hypertension, hypercholesterolemia, and diabetes Authors: Williams PT Reference: Med Sci Sports Exerc 2008; 40(10): 1740-1748 Type of study: Cross-sectional study Keywords: exercise intensity, hypertension, hypercholesterolaemia, diabetes, running

EB Rating: 7/10

CI Rating: 8/10

Background: There is some evidence to suggest that the health-related benefits of regular exercise are also dependent on exercise intensity – yet, this has not been investigated thoroughly **Research question/s:** Is increased running intensity (running speed) associated with reduced use of antihypertensive, cholesterol-lowering, and anti-diabetic medication, when adjusted for running volume (km/day)?

Methodology:

- Subjects: 54 700 non-smoking runners (male=25 552, female=29 148)
- Experimental procedure: All the runners were part of a larger study. They all completed a questionnaire that included training (males; 5.2+3.1 km/day, 3.3+0.5 m/sec, females; 4.7+2.9 km/day, 3.0+ 0.4 m/sec) and medication history data. The main focus of data collected in this study was the running pace (m/sec during a usual run) and self-reported medication use (antihypertensive, cholesterol-lowering, and anti-diabetic)
- Measures of outcome: Logistic regression analysis to estimate the dose-response relationship between usual running pace and medication use

Main finding/s:



- Odds for medication use (adjusted for kilometers per day): In males the odds for medication use was reduced (%) for each m/sec increment in running intensity as follows: antihypertensive drug=54%, cholesterol-lowering medication=55%, anti-diabetic medication=50%. In females, the reduction was as follows: antihypertensive drug=46%, cholesterol-lowering medication=48%, anti-diabetic medication=75% (all at p<0.0001)
- Running pace correlated significantly with a 10-km performance but usual pace remained significantly related to lower use of all three medications (males) and anti-hypertension, and anti-diabetic medications (females) when adjusted for 10-km performance

Conclusion/s:

 Increased exercise intensity (running pace) is associated with reduced use of anti-hypertensive, cholesterollowering and anti-diabetic medication use in male and female runners, and this is independent of exercise volume and cardiorespiratory fitness

Methodological considerations:

No cause effect relationship, well-conducted study, self-reported data, only runners were studied, large sample size

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In a case-control study, lifelong physical activity in middle aged male subjects was associated with evidence of decreased atherosclerosis (intimal roughness) in the carotid arteries

Title: Physical activity throughout life reduces the atherosclerotic wall process in the carotid artery Authors: Sandrock M, Schulze C, Schmitz D, Dickhuth H-H, Schmidt-Truckswaess A Reference: Br J Sports Med 2008; 42: 539-544

Type of study: Case-control study

Keywords: physical activity, lifelong, atherosclerosis, risk factors, carotid intima

EB Rating: 7/10

CI Rating: 8/10

Background: The mechanisms/s by which increased cardiorespiratory fitness reduce the risk for clinical events associated with atherosclerotic vascular disease is/are not yet well established

Research question/s: Is regular, lifelong physical activity associated with evidence of reduced atherosclerosis in the carotid artery?

Methodology:

- Subjects: 50 healthy inactive male subjects (SED, 64.4+5.1 yrs) and 51 healthy lifelong physically active male subjects (ACT, 64.5+3.5 yrs)
- Experimental procedure: All the subjects were assessed clinical and a blood test (including a lipogram), spiroergometry, echocardiography and carotid ultrasound examination were performed. The pathologic wall process in the carotid artery was assessed using a dynamic model, based on an automatic layer detection system. Two ultrasound parameters that were used in this study to describe the atherosclerotic abnormalities were intima-media thickness (IMT) and roughness (R)
- Measures of outcome: Risk factors for atherosclerosis, intima-media thickness and roughness in the two groups (SED and ACT)

Main finding/s:

 Risk factors for atherosclerosis: There was a significant difference in overall risk (Framingham score, body weight, systolic blood pressure, VO_{2max}, lipid profile - high density lipoprotein cholesterol, triglyceride) between SED and ACT groups



SED group ACT group

SED group



Conclusion/s:

 In a case-control study, lifelong physical activity in middle aged male subjects was associated with evidence of decreased atherosclerosis (intimal roughness) in the carotid arteries

Methodological considerations:

Well conducted study, no cause effect can be shown, males only

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