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Ketola S et al. No evidence of long-term benefits of arthroscopic acromioplasty in the treatment of shoulder impingement syndrome: Five-year results of a randomised controlled trial. Bone Joint Res. 2013;2(7):132-9.

Summary: This randomized controlled trial concludes that acromioplasty in the treatment of shoulder impingement syndrome is not cost-effective and that structured exercise treatment seems to be the treatment of choice for shoulder impingement syndrome.

Abstract: OBJECTIVES: To report the five-year results of a randomised controlled trial examining the effectiveness of arthroscopic acromioplasty in the treatment of stage II shoulder impingement syndrome.

METHODS: A total of 140 patients were randomly divided into two groups: 1) supervised exercise programme (n = 70, exercise group); and 2) arthroscopic acromioplasty followed by a similar exercise programme (n = 70, combined treatment group).

RESULTS: The main outcome measure was self-reported pain as measured on a visual analogue scale. At the five-year assessment a total of 109 patients were examined (52 in the exercise group and 57 in the combined treatment group). There was a significant decrease in mean self-reported pain on the VAS between baseline and the five-year follow-up in both the exercise group (from 6.5 (1 to 10) to 2.2 (0 to 8); $p < 0.001$) and the combined treatment group (from 6.4 (2 to 10) to 1.9 (0 to 8); $p < 0.001$). The same trend was seen in the secondary outcome measures (disability, working ability, pain at night, Shoulder Disability Questionnaire and reported painful days). An intention-to-treat analysis showed statistically significant improvements in both groups at five years compared with baseline. Further, improvement continued between the two- and five-year timepoints. No statistically significant differences were found in the patient-centred primary and secondary parameters between the two treatment groups.

CONCLUSIONS: Differences in the patient-centred primary and secondary parameters between the two treatment groups were not statistically significant, suggesting that acromioplasty is not cost-effective. Structured exercise treatment seems to be the treatment of choice for shoulder impingement syndrome.

Gokler A et al. Quadriceps function following ACL reconstruction and rehabilitation: implications for optimisation of current practices. Knee Surg Sports Traumatol Arthrosc. 2013 Jun 28. [Epub ahead of print]

Summary: This review indicates that full recovery after ACL reconstruction may not be achieved with current rehabilitation practices. Neuromuscular training incorporating motor learning principles should be added to improve treatment outcomes.

Abstract: PURPOSE: To determine the most effective practices for quadriceps strengthening after ACL reconstruction.

METHODS: An electronic search has been performed for the literature appearing from January 1990 to January 2012. Inclusion criteria were articles written in English, German or Dutch with unilateral ACL-reconstructed patients older than 13 years, RCT rehabilitation programmes containing muscle strengthening, protocol described in detail and time frame of measurements reported. Quadriceps muscle strength and patient-reported outcomes were the endpoints. Included studies were assessed on their methodological quality using the CONSORT Checklist.

RESULTS: From 645 identified studies, 10 met the inclusion criteria. Seven studies found an increase in quadriceps strength after intervention programmes regardless of type of training. An eccentric exercise programme showed significantly better values for isometric quadriceps strength compared to a concentric exercise programme. The Tegner activity scale showed a significant increase in activity level for all training programmes. The Cincinnati Knee Rating System showed significant improvements in particular for the neuromuscular training group.

CONCLUSIONS: The evidence from this review indicates that eccentric training may be most effective to restore quadriceps strength, but full recovery may not be achieved with current rehabilitation practices. Neuromuscular training incorporating motor learning principles should be added to strengthening training to optimise outcome measurements.

Fall D et al. The change in deep cervical flexor activity after training is associated with the degree of pain reduction in patients with chronic neck pain. Clin J Pain. 2012;28(7):628-34.

Summary: This study confirms that specific training of the deep cervical flexor muscles in women with chronic neck pain reduces pain and improves the activation of these muscles. Targeted exercise interventions are likely to be the most beneficial to patients with neck pain, when the selection of exercise is based on a precise assessment of the patients' neuromuscular control

Abstract: OBJECTIVES: Altered activation of the deep cervical flexors (longus colli and longus capitis) has been found in individuals with neck pain disorders but the response to training has been variable. Therefore, this study investigated the relationship between change in deep cervical flexor muscle activity and symptoms in response to specific training.

METHODS: Fourteen women with chronic neck pain undertook a 6-week program of specific training that consisted of a craniocervical flexion exercise performed twice per day (10 to 20 min) for the duration of the trial. The exercise targets the deep flexor muscles of the upper cervical region. At baseline and follow-up, measures were taken of neck pain intensity (visual analogue scale, 0 to 10), perceived disability (Neck Disability Index, 0 to 50) and electromyography (EMG) of the deep cervical flexors (by a nasopharyngeal electrode suctioned over the posterior oropharyngeal wall) during performance of craniocervical flexion.

RESULTS: After training, the activation of the deep cervical flexors increased ($P<0.0001$) with the greatest change occurring in patients with the lowest values of deep cervical flexor EMG amplitude at baseline ($R(2)=0.68$; $P<0.001$). There was a significant relationship between initial pain intensity, change in pain level with training, and change in EMG amplitude for the deep cervical flexors during craniocervical flexion ($R(2)=0.34$; $P<0.05$).

DISCUSSION: Specific training of the deep cervical flexor muscles in women with chronic neck pain reduces pain and improves the activation of these muscles, especially in those with the least activation of their deep cervical flexors before training. This finding suggests that the selection of exercise based on a precise assessment of the patients' neuromuscular control and targeted exercise interventions based on this assessment are likely to be the most beneficial to patients with neck pain.

Hodges PW et al. New insight into motor adaptation to pain revealed by a combination of modelling and empirical approaches. Eur J Pain. 2013;17(8):1138-46.

Summary: The data from this study states that acute back pain leads to increased spinal stability and that the pattern of muscle activity involves an individual-specific response to pain. This is likely to provide short-term benefit to enhance spinal protection. However, this adaptation could have long-term consequences for spinal health.

Abstract: BACKGROUND: Movement changes in pain. Unlike the somewhat stereotypical response of limb muscles to pain, trunk muscle responses are highly variable when challenged by pain in that region. This has led many to question the existence of a common underlying theory to explain the adaptation. Here, we tested the hypotheses that (1) adaptation in muscle activation in acute pain leads to enhanced spine stability, despite variation in the pattern of muscle activation changes; and (2) individuals would use a similar 'signature' pattern for tasks with different mechanical demands.

METHODS: In 17 healthy individuals, electromyography recordings were made from a broad array of anterior and posterior trunk muscles while participants moved slowly between trunk flexion and extension with and without experimentally induced back pain. Hypotheses were tested by estimating spine stability (Stability Index) with an electromyography-driven spine model and analysis of individual and overall (net) adaptations in muscle activation.

RESULTS: The Stability Index ($P < 0.017$) and net muscle activity ($P < 0.021$) increased during pain, although no two individuals used the same pattern of adaptation in muscle activity. For most, the adaptation was similar between movement directions despite opposite movement demands.

CONCLUSIONS: These data provide the first empirical confirmation that, in most individuals, acute back pain leads to increased spinal stability and that the pattern of muscle activity is not stereotypical, but instead involves an individual-specific response to pain. This adaptation is likely to provide short-term benefit to enhance spinal protection, but could have long-term consequences for spinal health.

Neurac Neurology Workshops

Redcord is pleased to introduce a brand new workshop about the use of Neurac in treatment of neurological disorders. Neurac Neurology will be held in China, Korea, Japan, Czech Republic and Norway during the autumn 2013.

The workshop was first held June 11- 12 in Guangdong Work Injury Rehabilitation Hospital in the Guanzhou province of China.

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The cost of musculoskeletal pain

The Norwegian department of The Bone and Joint Decade 2010 - 2020 (BJD) by FORMI recently published the report "A musculoskeletal accounting" about the cost of musculoskeletal injuries, pain and disorders. Musculoskeletal pain is what bothers most and cost the most, but is also becoming less of the state grant.

The goal of the report was to look at how many people that are suffering from musculoskeletal pain, what pain comes from, how much it costs society and how little funds that are earmarked for research on these problems. The report does not discuss the effect of treatment and / or measures to prevent these problems.

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