

Science & News

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Kang HK et al. Comparison of trunk muscle activity during bridging exercises using a sling in patients with low back pain. *Journal of Sports Science and Medicine*. 2012;11:510-15

Summary:

The results of the study verify the theory that the use of an unstable surface may increase the activation of global and local trunk muscles during bridging exercises in the supine and prone position. Furthermore, the authors conclude that bridging sling exercise may provide therapeutic effects for patients with LBP by increasing activation of the trunk muscles in rehabilitation programs.

Abstract:

The aims of this study were to compare the activation of global and local muscles of the trunk during bridging with sling exercise (BSE), bridging with ball exercise (BBE), and normal bridging exercise (NBE) and to conduct and analyze these exercises in supine and prone positions to prove the effectiveness of sling exercises. Thirty patients

with current low back pain (LBP) were recruited. In the supine and prone bridging exercise, each subject lifted their pelvis with their legs and feet in contact with the sling, ball, or normal surface. The electrical activities of the inferior oblique (IO), rectus abdominis (RA), multifidus (MF), and erector spinae (ES) muscles during the bridging exercises on the 3 surfaces were measured using surface electromyography (sEMG). For normalization, maximum sEMG signals were evaluated during each maximum voluntary isometric contraction (MVIC) maneuver. The root mean square during the exercise was normalized as a percentage of the MVIC (%MVIC). In the supine and prone positions, %MVIC of the IO, RA, MF, and ES during BSE was significantly higher than those during BBE and NBE ($p < 0.05$). In the supine position, %MVIC of the RA and ES during BBE was significantly higher than that during NBE ($p < 0.05$). In the prone position, all %MVIC during BBE were significantly higher than NBE ($p < 0.05$). These results verify the theory that the use of an unstable surface increases the activation of global and local trunk muscles during bridging exercises in the supine and prone positions. In conclusion, the use of BSE in a rehabilitation program may have therapeutic effects for patients with LBP by increasing trunk muscle activation.

Falla 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:

The study concludes that repetitive specific training of the deep cervical flexor muscles in women with chronic neck pain reduces pain and increases the activation of these muscles, especially in patients with the least activation of their deep cervical flexors before training.

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.

Lindstroem R et al. Current pain and fear of pain contribute to reduced maximum voluntary contraction of neck muscles in patients with chronic neck pain. Arch Phys Med Rehabil 2012; 1-7

Summary:

The study shows that the average MVC in patients with neck pain is moderately and inversely correlated to the pain experienced by the patient during maximal contraction to fear of movement and to some aspects of neck disability

Abstract:

Objective: To assess a range of physical and psychological factors and determine which factors contribute the most to reduced strength in patients with neck pain. Design: Regression. Setting: Laboratory. Participants: Women with chronic neck pain (n 34) and healthy controls (n 14). Interventions: Not applicable. Main Outcome Measures: Neck flexion, extension, and lateral flexion maximum voluntary contractions (MVC) were measured in patients and healthy controls. Additional parameters were collected for the patient group including: (1) questionnaires measuring general health (Medical Outcomes Study 36-Item Short-Form Health Survey), pain intensity, disability (Neck Disability Index [NDI]; Patient Specific Functional Scale), and fear of movement (Fear-Avoidance Beliefs Questionnaire [FABQ]), (2) pressure pain thresholds, (3) crosssectional area of selected neck muscles, and (4) surface electromyography from selected neck muscles during a multidirectional isometric task. Univariate and multivariate regression analyses were applied with the average MVC (average of flexion, extension, and lateral flexion MVC) as the dependent variable. Results: The average MVC was significantly lower in patients (mean SD, 130.0 6.0N) compared with controls (166.9 11.7N; P .01). Univariate regression of the average MVC with the FABQ, NDI, or pain experienced during the MVC gave R2 values of 13.4%, 13.8%, and 21.1%, respectively. Collectively, the FABQ and pain experienced during the MVCs resulted in an R2 of 26.6% and the FABQ, contraction pain, and NDI, an R2 of 28.2%. Conclusions: The average maximum voluntary force produced in neck flexion, extension, and lateral flexion is inversely and moderately correlated with the pain experienced during maximal contraction, fear of movement, and aspects of neck disability in patients with chronic neck pain.

Macedo LG et al. Effect of motor control exercises versus graded activity in patients with chronic nonspecific low back pain: A randomized controlled trial. Physical Therapy 2012;92(3): 363-77

Summary:

The article suggest that motor control exercises and graded activity have similar effects in reducing pain and disability and increasing function, global impression of change, and quality of life when applied to a nonspecific chronic low back pain group. These results are similar to those of clinical guidelines that recommend that no exercise therapy is superior to another. The author recommend that in clinical practice therapists identify their area of expertise and treat their patients accordingly.

Abstract:

Background. Motor control exercises to improve control and coordination of trunk muscles and graded activity under the principles of cognitive-behavioral therapy are 2 commonly used exercise therapies, yet there is little evidence to support the use of one intervention over the other. Objective. The objective of this study was to compare the effectiveness of motor control exercises and graded activity for patients with chronic nonspecific low back pain. Design. This study was a prospectively registered randomized controlled trial with outcome assessment and statistical analyses conducted blind to group. Setting. The study was conducted in primary care settings. Patients. The participants were 172 patients with chronic (>12 weeks) nonspecific low back pain. Interventions. Patients were randomly assigned to receive either motor control exercises or graded activity. There was no attempt to subclassify patients to match them to a treatment. Patients in both groups received 14 sessions of individualized, supervised exercise therapy. Measurements. Primary outcomes were average pain over the previous week (numeric rating scale) and function (Patient-Specific Functional Scale); secondary outcomes were disability (24-item Roland-Morris

Disability Questionnaire), global impression of change (Global Perceived Effect Scale), and quality of life (36-Item Short-Form Health Survey questionnaire [SF-36]). Outcome measures were collected at baseline and at 2, 6, and 12 months after intervention. Results. A linear mixed models analysis showed that there were no significant differences between treatment groups at any of the time points for any of the outcomes studied. For example, the effect for pain at 2 months was 0.0 [-0.7 to 0.8]. Limitations. Clinicians could not be blinded to the interventions. Conclusion. The results of this study suggest that motor control exercises and graded activity have similar effects for patients with chronic nonspecific low back pain



Redcord News

Redcord Axis - rotational exercises

Redcord Axis is a revolutionary exercise device that takes suspension exercises to a whole new level. It introduces rotational movements, creating the potential for a large number of new functional exercises, progressions and variations.

“Correct anatomical movements”

Redcord Axis gives you more opportunities compared to traditional suspension exercises. By adding rotation, Axis increases the degree of instability further, making the well-known traditional exercises more challenging.

“This instability must be balanced in the rotation system, which requires good movement control. Many of these movements may be very difficult or even impossible to perform in a normal suspension training system”, says Physiotherapist and head of the research and development department in Redcord, Oeyvind Pedersen.

Axis is designed to withstand heavy loads with minimal resistance and noise in the apparatus. The rotation takes place through two separate rollers instead of one, which gives anatomically and technically correct execution of the movements.

“A versatile training equipment”

Training with rotating movements is of great importance for physical therapists, personal trainers and ordinary people wanting to improve physical function. This makes Axis versatile training tool.

“For the fitness and sports segment, Axis will be a great tool both to mimic sport-specific movements and to stimulate optimal motion control. Personal trainers will be able to instruct their clients in a new level of corrective exercises, and physical therapists will find Axis to be a useful tool to provide equal weights between healthy and damaged side”, says Pedersen.

Redcord have already implemented rotation as a subject in both Neurac courses (medical) and Active Multi-Suspension courses, where you are introduced to tandem training. As a training tool, Redcord Axis will appeal to the experienced exercisers or athletes who want to train in an unstable environment.

- Improve physical function

Redcord’s slogan is “Helping Every Body to improve physical function for participation in an active life”. Clinical experience and proven knowledge have shown how Redcord suspension exercises can improve physical function. In combination with the Redcord Trainer and Redcord Mini, the Redcord Axis gives you the opportunity to train your entire body in an even more effective and varied way.

“Redcord Axis will, with its distinctive characteristics, help to lift this even a step further”, says Pedersen.

Redcord Axis is released in the beginning of 2013!

Health Minister visited Redcord.

The Norwegian health minister Jonas Gahr Støre was more than impressed after visiting Redcord in October



- I'm not just a bit, but very impressed with what I have seen and heard here today. This is knowledge on how to improve the physical health of many people. It is knowledge that the whole community can benefit from, says Støre after a two-hour visit at Redcord headquarter in Kilsund outside of Arendal, Norway.

The newly constituted health minister promises to bring the knowledge to his Health Ministry. Støre recently said in media that "the most important person improve your health is yourself". And he believes that Redcord exercises and Neurac® treatment is a good example of how one can prevent pain and prevent musculoskeletal problems.

- It illustrates that exercise and movement can prevent injury. I am convinced that much of what is done here can be brought into the public health system, says Støre.

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