



Saeterbakken AH et al.
Effect of core stability training
on throwing velocity in female
handball players. *J Strength Cond
Res* 2011;25(3):712-18

Summary:

The study concludes that a unique functional, 3D, core stability program consisting of progressively unstable closed kinetic chain exercises for hips and torso significantly improved throwing velocity among handball players. High levels of core strength and stability may be an important precondition for generating high rotational velocities in multisegmental movements such as throwing.

Abstract:

The purpose was to study the effect of a sling exercise training (SET)-based core stability program on maximal throwing velocity among female handball players. Twenty-four female high-school handball players (16.6 \pm 0.3 years, 63 \pm 6 kg, and 169 \pm 7 cm) participated and were initially divided into a SET training group (n = 14) and a control group (CON, n = 10). Both groups performed their regular handball training for 6 weeks. In addition, twice a week, the SET group performed a progressive core stability-training program consisting of 6 unstable closed kinetic chain exercises. Maximal throwing velocity was measured before and after the training period using photocells. Maximal throwing velocity significantly increased 4.9% from 17.9 \pm 0.5 to 18.8 \pm 0.4 m_s21 in the SET group after the training period (p , 0.01), but was unchanged in the control group (17.1 \pm 0.4 vs. 16.9 \pm 0.4 m_s21). These results suggest that core stability training using unstable, closed kinetic chain movements can significantly improve maximal throwing velocity. A stronger and more stable lumbopelvichip complex may contribute to higher rotational velocity in multisegmental movements. Strength coaches can incorporate exercises exposing the joints for destabilization force during training in closed kinetic chain exercises. This may encourage an effective neuromuscular pattern and increase force production and can improve a highly specific performance task such as throwing.

Hubscher M et al.
Neuromuscular training for
sports injury prevention:
A systematic review. *Med Sci
Sports Exercise* 2011;42(3):
413-21

Summary:

The study conclude that neuromuscular training might be effective in preventing lower limb injuries among adolescent and young athletes during ball sports.

Abstract:

Purpose: The aim of this systematic review was to assess the effectiveness of proprioceptive/ neuromuscular training in preventing sports injuries by using the best available evidence from methodologically well-conducted randomized controlled trials and controlled clinical trials without randomization. Methods: Two independent researchers performed a literature search in various electronic databases and reference lists. The reviewers independently assessed trials for inclusion criteria and methodological quality and extracted the data. Focusing on studies of high methodological quality, relative risks (RR) and 95% confidence intervals (CI) were used to estimate treatment effects. Results: From a total of 32 relevant studies, 7 methodologically well-conducted studies were considered for this review. Pooled analysis revealed that multi-intervention training was effective in reducing the risk of lower limb injuries (RR = 0.61, 95% CI = 0.49-0.77, P < 0.01), acute knee injuries (RR = 0.46, 95% CI = 0.28-0.76, P < 0.01), and ankle sprain injuries (RR = 0.50, 95% CI = 0.31-0.79, P < 0.01). Balance training alone resulted in a significant risk reduction of ankle sprain injuries (RR = 0.64, 95% CI = 0.46-0.9, P < 0.01) and a nonsignificant risk reduction for injuries overall (RR = 0.49, 95% CI = 0.13-1.8, P = 0.28). Exercise interventions were more effective in athletes with a history of sports injury than in those without. Conclusion: On the basis of the results of seven high-quality studies, this review showed evidence for the effectiveness of proprioceptive/ neuromuscular training in reducing the incidence of certain types of sports injuries among adolescent and young adult athletes during pivoting sports. Future research should focus on the conduct of comparative trials to identify the most appropriate and effective training components for preventing injuries in specific sports and populations.

Cagnie B et al. Pain induced changes in the activity of the cervical extensor muscles evaluated by muscle functional magnetic resonance imaging. Clin J Pain 2011; 27(5): 392-97

Summary:

The study concludes that experimental muscle pain changes neck muscle activity. The results are consistent with earlier studies using experimental pain models in other regions of the body.

Abstract:

Objectives: To investigate the effect of experimental neck muscle pain on the activation of the cervical extensor muscles during the performance of a cervical extension exercise by the use of muscle functional magnetic resonance imaging. **Methods:** The activity of the multifidus, semispinalis cervicis, semispinalis capitis, and splenius capitis muscles was investigated bilaterally at 2 cervical levels (C2 to C3 and C7 to T1) in 15 healthy individuals. Measurements were taken at rest and after the performance of a cervical extension exercise without and with induced pain of the right upper trapezius (intramuscular injection of hypertonic saline). **Results:** In the pain condition, the activity of the multifidus/semispinalis cervicis was reduced bilaterally at the C7 to T1 level ($P=0.045$). For the semispinalis capitis, there were no significant differences between both conditions. The splenius capitis showed a significantly higher T2 shift at the left side at the C2 to C3 level ($P=0.008$) and a lower T2 shift at the right side at the C7 to T1 level ($P=0.023$). **Discussion:** This is the first study that has shown pain to immediately affect the activity of both deep and superficial cervical extensor muscle layers during a cervical extension exercise. The findings support recommendations for evaluation of cervical extensor muscle function early in the management of painful cervical spine injuries.

Mok NW et al. Changes in lumbar movement in people with low back pain are related to compromised balance. SPINE 2010;36(1):45-52

Summary:

The study shows people with back pain have impaired balance reactions in response to unexpected external perturbation compared to healthy individuals.

Abstract:

Study Design: Comparing people with and without low back pain (LBP). **Objectives:** This study aimed to investigate lumbar spine movement and the quality of postural recovery in response to unexpected postural perturbation in people with LBP. **Summary of Background Data:** People with chronic LBP tend to use lumbar spine motion less frequently for postural control than pain-free

individuals, and after voluntary arm movement, they need more time and a greater number of postural adjustments to regain postural equilibrium. We hypothesize that motion of the lumbar spine is altered in people with chronic LBP, and this would be associated with compromised control of postural stability in response to unexpected perturbation. **Methods:** The response to a sudden load imposed by a weight dropped into a box held in the hands was studied in 11 individuals with chronic LBP and matched controls. Lumbopelvic motion was recorded with an electromagnetic motion analysis system. Time to

recover balance was calculated from ground reaction forces. **Results:** People with LBP had a delayed initiation of lumbar spine flexion (angular displacement) [Control _ 44.9 [25.1] ms, LBP _ 90.2 [42.3] ms, $P < 0.001$] and took longer to regain postural stability [Control _ 460.4 [123.4] ms, LBP _ 761.0 [194.2] ms, $P < 0.001$] after the perturbation. **Conclusion:** These data provide further evidence that the quality of balance control is compromised in LBP patients and that this is associated with poor use of spinal motion as a component of the postural strategy.

Courses in Korea

Redcord has recently had educational activities in Korea. In early October Redcord Instructor Fredrik Halvorsen held the following courses/instructor seminars: Redcord Active Corrective Exercise, Neurac 2 and Neurac 2 Stimula. There are now 3 certified Neurac 2 and Neurac 2 Stimula Instructors and 6 Redcord Active Corrective Exercise instructors in Korea. This opens up for many courses to be hosted in Korea in 2012. In addition to the Instructor seminars several ordinary international Neurac 2 courses were arranged. All courses were arranged at Redcord's distributor, FineM, new course and office facilities in Seoul.



Fredrik Halvorsen with Redcord Neurac 2 Stimula in Korea.

Redcord attending Medica in Düsseldorf

Redcord will be present with a booth at Medica in Düsseldorf, November 16.-19. You and your customers/contacts are welcome to visit us in Hall 4, stand A40. We will present the Neurac® treatment methodology and will be present with a fully equipped Redcord Workstation Professional. You will also have the opportunity to try out the Redcord Stimula apparatus, our patented solution for controlled vibration. There will be demonstrations and possibilities to learn more about our methods and range of courses, products and services throughout the whole event. The Redcord team from Germany and Norway will be present at the booth.



Redcord at the APA Conference in Brisbane, Australia



Gitle Kirkesola and Andrew Hoare at the APA Conference

Redcord participated recently in the APA conference in conjunction with distributor AOK Health in Sydney, Australia. Redcord is the bronze sponsor of the event, which has about 2,200 participants. On our stand we showed up Redcord Workstation Professional with a focus on Neurac treatment and Redcord Stimula. Gitle Kirkesola (Redcord Clinic Lysaker, Norway) and Andrew Hoare (Physio Trains, Melbourne) demonstrated and discussed physiotherapists on a conveyor belt through the entire conference. The participants showed great interest in our method and gave much attention to our stand.

Participation in the conference followed by a Neurac 1 course in Sydney 2.-4th of December. This course is an exclusive course for 15 participants with Gitle Kirkesola and Andrew Hoare as course instructors.

Research on Redcord Stimula

The follow-up study: "The Effect of Neurac and Short Term Vibration of the Neck on Postural Control in People with Chronic Neck Pain", by Shellie Boudreau and Deborah Falla. The preliminary report from this study shows promising results in reduction of pain intensity and improvements in proprioceptive acuity following the intervention with Neurac plus Redcord Stimula.

We are really excited about this and look forward to the final results. The photo is from this year's seminar for the Norwegian Interest Group of Redcord Stimula users. It was a group of 50 enthusiastic therapists who attended the seminar in September in order to get the latest updates, case studies and exchange experiences.

