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Science & News

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Saliba SA et al. Differences in transverse abdominis activation with stable and unstable bridging exercises in individuals with low back pain. North American Journal of Sports Physical Therapy 2010;5(2):63-73.

Summary:

The study indicate that sling based exercise is equivalent to traditional mat exercises in increasing the TrA activation ratio. The study also show that individuals with LBP may be better able to recruit the TrA during more complex sling based tasks.

Abstract:

The Background. The transversus abdominis (TrA) is a spine stabilizer frequently targeted during rehabilitation exercises for individuals with low back pain (LBP). Performance of exercises on unstable surfaces is thought to increase muscle activation, however no research has investigated differences in TrA activation when stable or unstable surfaces are used. Objective. The purpose of this study was to investigate whether TrA activation in individuals with LBP is greater when performing bridging exercises on an unstable surface versus a stable surface. Methods. Fifty one adults (mean ± SD, age 23.1 ± 6.0 years, height 173.60 ± 10.5 cm, mass 74.7 ± 14.5 kg) with stabilization classification of LBP were randomly assigned to either exercise progression utilizing a sling bridge device or a traditional bridging exercise progression, each with 4 levels of increasing difficulty. TrA activation ratio (TrA contracted thickness/ TrA resting thickness) was measured during each exercise using ultrasound imaging. The dependent variable was the TrA activation ratio. Results. The first 3 levels of the sling-based and traditional bridging exercise progression were not significantly different. There was a significant increase in the TrA activation ratio in the sling-based exercise group when bridging was performed with abduction of the hip (1.48 ± .38) compared to the traditional bridge with abduction of the hip (1.22 ± .38; p<.05). Conclusion. Both types of exercise result in activation of the TrA, however, the sling based exercise when combined with dynamic movement resulted in a significantly higher activation of the local stabilizers of the spine compared to traditional bridging exercise. This may have implications for rehabilitation of individuals with LBP.

Hodges P. Pain and motor control: From the laboratory to rehabilitation. Journal of Electromyography and kinesiology 2011;21: 220-8

Summary:

The article present a new theory in the adaptation of pain suggesting redistribution of activity within and between muscles and that changes may occur at multiple levels of the nervous system.

Abstract:

Movement is changed in pain and is the target of clinical interventions. Yet the understanding of the physiological basis for movement adaptation in pain remains limited. Contemporary theories are relatively simplistic and fall short of providing an explanation for the variety of permutations of changes in movement control identified in clinical and experimental contexts. The link between current theories and rehabilitation is weak at best. New theories are required that both account for the breadth of changes in motor control in pain and provide direction for development and refinement of clinical interventions. This paper describes an expanded theory of the motor adaptation to pain to address these two issues. The new theory, based on clinical and experimental data argues that: activity is redistributed within and between muscles rather than stereotypical inhibition or excitation of muscles; modifies the mechanical behaviour in a variable manner with the objective to ''protect'' the tissues from further pain or injury, or threatened pain or injury; involves changes at multiple levels of the motor system that may be complementary, additive or competitive; and has short-term benefit, but with potential long-term consequences due to factors such as increased load, decreased movement, and decreased variability. This expanded theory provides guidance for rehabilitation directed at alleviating a mechanical contribution to the recurrence and persistence of pain that must be balanced with other aspects of a multifaceted intervention that includes management of psychosocial aspects of the pain experience.

O'Leary S et al. The relationship between superficial muscle activity during the cranio-cervical flexion test and clinical features in patients with chronic neck pain. Manual Therapy 2011; 16: 452-5

Summary:

The article support a relationship between neck pain and altered neuromuscular function. The study show that the magnitude of superficial muscle activity during the CCFT is related to the level of patient reported pain intensity.

Abstract:

Changes in motor behavior are a known feature of chronic mechanical neck pain disorders. This study examined the strength of the association between reported levels of pain and disability from 84 individuals (63 women, 21 men) with chronic mechanical neck pain and levels of electromyographic activity recorded from superficial cervical

flexor (sternocleidomastoid; SCM and anterior scalene; AS) muscles during progressive stages of the cranio-cervical flexion muscle test. A significant positive association was observed between superficial muscle activity and pain intensity (P < 0.003), but not pain duration (P > 0.5) or perceived disability (P > 0.21). The strongest relationship between pain intensity and superficial muscle activity occurred at the final increment of the cranio-cervical flexion test (inner-range test position) for both the SCM and AS muscles (R2 ¼ 0.16). Although a positive and significant relationship between pain intensity and superficial muscle activity was shown, the relationship was only modest (16% explained variance), indicating that multiple factors contribute to the altered motor function observed in individuals with chronic mechanical neck pain.

Powers CM et al. The influence of abnormal hip mechanics on knee injury: A biomechanical perspective. JOSPT 2010;40(2):42-51

Summary:

The study suggest that impairments at the hip may impact tibiofemoral and patellofemoral mechanics in multiple planes and focus on the importance of pelvis, trunk and hip stability in relation to lower extremity function.

Abstract:

During the last decade, there has been a growing body of literature suggesting that proximal factors may play a contributory role with respect to knee injuries. A review of the biomechanical and clinical studies in this area indicates that impaired muscular control of the hip, pelvis, and trunk can affect tibiofemoral and patellofemoral joint kinematics and kinetics in multiple planes. In particular, there is evidence that motion impairments at the hip may underlie injuries such as anterior cruciate ligament tears, iliotibial band syndrome, and patellofemoral joint pain. In addition, the literature suggests that females may be more disposed to proximal influences than males. Based on the evidence presented as part of this clinical commentary, it can be argued that interventions which address proximal impairments may be beneficial for patients who present with various knee conditions. More specifically, a biomechanical argument can be made for the incorporation of pelvis and trunk stability, as well as dynamic hip joint control, into the design of knee rehabilitation programs.

Ehab EG. Lumbar repositioning accuracy as a measure of proprioception in patients with back dysfunction and healthy controls. Asian Spine Journal 2011;5(4):201-7

Summary:

The findings suggest that proprioception is affected in subjects with back dysfunction. The study showed significant differences in the lumbar repositioning accuracy between the control and LBD groups.

Abstract:

Study Design: A control group cross-sectional design. Purpose: To compare the difference in repositioning accuracy, as a measure of lumbar proprioception, between patients with back dysfunction and healthy subjects. Overview of Literature: Evidence suggests that spinal stability might be compromised in patients with back dysfunction. Lumbar proprioception in back dysfunction has not, however, been adequately investigated. Methods: Forty-five participants, representing three groups, took part in the study. Subjects in group one (n = 15) were healthy subjects. Subjects in group two (n = 15) had a history of non-specific mechanical back dysfunction, while subjects in group three (n = 15) had discogenic back dysfunction. Subjects were required to reproduce a target position of 30 lumbar flexion and the absolute error (AE) was calculated. Results: The AEs between target and reproduced positions were calculated. The average repositioning AEs were 2.8, 7.5, and 7.1 for the control, mechanical, and discogenic back dysfunction groups respectively. Analysis of variance revealed significant difference between the three groups (p < 0.0002). The AEs were greater in the two back dysfunction groups compared to the control group. Post-hoc tests revealed significant difference in AEs between the control and mechanical group (p < 0.0003), and discogenic group (p < 0.0001), while there was no significant difference between the mechanical and discogenic back dysfunction groups (p = 0.73). Conclusions: Differences in proprioception do exist between subjects with back dysfunction and normal subjects. The proprioceptive deficits do exist regardless of the cause of the back dysfunction, and may represent an important aspect of the patho-physiology of such a condition.

International courses in Norway

Redcord will arrange a Neurac 2 instructor sertification for therapists from 26th of March to 30th of March 2012.

26.-28. March: Neurac 2 Back and Pelvis, Neck, Upper Extremety, Lower Extremety.

29.-30. March: Neurac 2 Stimula

J-Neurac Conference in Japan

Fredrik Halvorsen from Redcord AS visited the J- Neurac Conference in Tokyo February 2012.

Lets talk @Redcord!

From the 1st of February Redcord introduced English as the primary language on the official Facebook fan page. As our brand is getting more famous internationally, we would like to invite all our distributors to join and contribute to activity on our fan page.

By typing **@Redcord** in the status every time you mention Redcord, your status update will be linked to our site, and you will automatically contribute to activity to our site. Please do so every time you find an interesting article that in some way can be related to Redcord. We already know the benefits of Neurac treatment and Redcord corrective exercises. Now, its time to let the world know!

Do you know the advantages?

Do you want to know why Redcord is the best equipment for home gyms, fitness centers, hospitals and therapists? It took us over 20 years to get there! Redcord equipment and exercises are based on over 20 years of experience within pain treatment and rehabilitation. We train hundreds of physiotherapists, chiropractors, doctors, personal trainers and other health- and fitness personel all over the world every year!