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A Review Gluteus Medius Muscle Function Al Limitation in Chronic Low Back Pain

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ABSTRACT

Low Back pain proper diagnosis & approach that includes all muscular modifications responsible for low back pain is one of the main issues in the clinical examination of patients with low back pain symptoms. The gluteal muscles, which are attached to the lumbar pelvic area, play a significant function in transmitting forces from upper-body movements to the limbs of the lower body. Therefore, while evaluating low back pain, doctors and researchers are paying more and more attention to the gluteal muscles. This study emphasizes a randomized controlled comparative effectiveness trial that find a significant correlation between the prevalence of low back pain and gluteal muscle dysfunction. A decrease in the gluteus medius muscles' strength during abduction is one of the functional changes in the gluteal muscles, along with neuromuscular changes and fatigability in the gluteus maximus muscles.

INTRODUCTION

Low back pain is the second leading cause of manpower loss in many countries, the following condition that decreases productivity. It may be seen in 80% of the general population during any period of life. Low back pain progresses in an undulating pattern, and 10% of all low back pain is chronic. In 90% of acute low back pain, the symptoms resolve in 2–4 weeks; it was reported that 69% of cases showed a second attack of pain within the first year. The reason for these recurrences is unclear. An important cause is considered to be the instability of the moving segment of the lumbar vertebrae. The lumbar muscles of patients and healthy subjects have undergone microscopic assessment, and structural changes have been shown in the muscles of patients with back pain.

In physically active adults, the annual incidence of low back pain with functional impairment is approximately 10% to 15%. Nearly 5% of adults will have persistently disabling low back pain. The rate of recurrence within 1 year approaches 44%. Within 10 years of an initial episode, there is an 80% rate of recurrence. Low back pain is an important health problem. Although low back pain's is to be increasing, epidemiologic research into the problem is in a formative stage, particularly when compared with cancer, infection, and cardiovascular malfunction.

When imbalance between the abdominal muscles of the trunk and extensor muscles occurs, it triggers low back pain and reduces stabilization of the lumbar segment. In addition, low back pain patients experience a decrease in trunk activity because of pain, structural damage, and inhibition of the reflex muscle contraction mechanism, and due to decrease of the activity of the trunk for a long time and disuse, muscle atrophy and a decrease in muscle

strength occur, which aggravate low back pain and bring about secondary lumbar segment damage and physical disability. Regardless of the clinical causes, all those who complain of low back pain experience a decrease in muscle strength, muscle endurance, and flexibility, and limitation of lumbar and lower limb joint range of motion.

Description of the Condition

Low back pain is defined as pain, muscle tension, or stones localized below the costal margin and above the inferior gluteal folds, with or without pain referred to the legs. Most patients who experience low back pain are labeled as having 'non-specific low back pain', which is defined as symptoms not attributable to a recognizable, known, specific pathology (for example, fracture, enclosing spondylitis, spongy arthritis, infection, neoplasm, or metastasis). Several divergent structures of the back have been implicated in symptoms of non-specific low back pain, including the musculature, joints, and discs; but also psychosocial factors_ including maladaptive pain coping behaviors, high baseline functional impairment, presence of psychiatric comorbidities, and low general health status. These psychosocial factors have been associated with persistent, disabling low back pain.

Gluteal Muscles

The Gluteal Muscles comprise of three muscles that make up the buttocks: Gluteus Maximus, Gluteus Medius and the Gluteus Minimus. Gluteus medius may play a role in the stability of the pelvis. Equally, Gluteus medius, in particular, serves an important role in maintaining the actual trunk upright when the feet of the opposite side are actually raised from the ground in strolling and running,

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where the body weight tends to act by tugging the pelvis downwards within the unsupported side. This propensity is counteracted by gluteus medius and gluteus minimus on the supporting side that acts from below and applies a powerful traction on the stylish bone to cause a small rising of the pelvis around the unsupported side. Clinical course of low back pain could be described as acute, sub-acute, recurrent, or chronic. The high prevalence of continuing and chronic low back pain plus the associated costs, therefore, clinicians need to place high priority about interventions that prevent recurrences and the transition to serious low back pain.

Important Role Gluteus Medius (GM)

The gluteus medius (GM) is thought to play an important role in stabilizing the pelvis and controlling femoral adduction and internal rotation during functional activity. GM Weakness, resulting in decreased stabilization and control, has been suggested to be related to lower extremity dysfunction and injury. Many clinicians focus on strengthening the GM to improve lower extremity kinematics for the prevention and rehabilitation of injury. An indirect way to measure GM strength is through electromyography (EMG). It is generally assumed that exercises producing higher levels of activation will result in greater strengthening effects. Understanding what exercises result in the greatest level of GM activation will assist clinicians in their injury prevention and rehabilitation efforts.

Low back pain (LBP) is a very common disorder and a major contributor of the costs targeting different age groups and variety of occupational categories. Approximately, 70–85% of all adults experience a significant episode of LBP at some point in their lives. LBP is reported to be one of the largest causes of disability in the entire world. Due to the pain and inconvenience, individual's with developed LBP refrain using their back muscles properly in their daily activities. This leads to the atrophy of the back muscles and other muscles functionally coupled with the back muscles such as gluteal muscles. The gluteal muscles include gluteus maximus (GMax), which is the largest muscle of the human body and a powerful hip extensor muscle and lateral rotator), gluteus medius (GMed), which is an abductor muscle with an important role in stabilizing the pelvis, and gluteus minimus (GMin), which is a muscle with relatively a complex function responsible.

Chronic low back pain (CLBP) is the most common and exorbitant medical issue. Reasons for CLBP give an impression of being intricate and multifactorial. The primary Causes of mechanical LBP were physical impairments, including postural abnormalities, disturbance of motor control, and muscles imbalance. Functional movement is never isolated because it is produced by several muscles acting as prime movers, synergists, or stabilizers that coordinate to produce an activation pattern. In addition, functional strength does not require maximal activation; muscle onset and timing are more important. The pattern of activation includes

the timing (i.e., which muscle is activated first, second, third, etc.) and amount of muscle activity. Adequate muscle activation patterns are recognized as important for the effective functioning of the lumbar spine when the synergic muscles are activated in a suitable temporal order. Increased or decreased muscle activity and delayed muscular activation can change the normal movement pattern. It has been noted that patients with chronic or recurrent LBP have altered patterns of extensor muscles and postural dysfunction⁹.

Low Back pain (LBP) Syndrome

Low back pain (LBP) syndrome has been considered as one of the important causes of disability. The myofascial origins of LBP (myofascial low back pain). Previously, the diagnosis of myofascial LBP is usually given when there is no organic lesions can be identified. This unscientific approach should be clarified since the pathophysiology of myofascial trigger points (MTrP) has now been better understood. In clinical practice, MTrPs can be frequently identified in the trunk muscles and lower limb muscles in patients with LBP due to various causes including lumbar disc lesions and facet joint lesions in addition to myofascial LBP. Therefore, myofascial LBP is not a synonym of “LBP with MTrPs”. In some LBP patients, the pain in the low back is caused by the MTrPs in the lumbar paraspinal muscles. The therapeutic approach to myofascial LBP has usually focused on the elimination of MTrPs including manual therapy, physical therapy modalities, and needling of MTrPs. However, it may only provide temporary pain relief. The recurrent rate seems to be fairly high based on the clinical observation on our patients who had been previously treated simply with MTrP relief. The major reason of the therapeutic failure is due to an inaccurate diagnosis and/or an inappropriate treatment. The understanding of the pathogenesis of MTrPs in LBP is a critical issue to provide an optimal therapeutic approach in the management of myofascial LBP.

MATERIALS AND METHODS

The methodology consist a case series study. The data well be collected from the patients by keeping in mind the inclusion and exclusion criteria.

This study used a randomized controlled comparative effectiveness trial to assess the effect of gluteus medius muscle strengthening to a standard exercise protocol in people with chronic low back pain who have gluteus medius muscle weakness with associated tenderness. This was a pilot to assess the feasibility of the study design and to gather preliminary data on the effectiveness of the gluteus medius strengthening.

RESULTS

One hundred fifty participants with chronic LBP and 75 age and sex matched control participants were recruited and enrolled. Characteristics of both groups are presented. Participants with chronic LBP had a higher BMI. Eighty-four participants with LBP had unilateral

symptoms and 66 had bilateral symptoms, totaling 216 affected and 84 unaffected sides.

CONCLUSIONS

Low back pain (LBP) syndrome is muscle pain syndromes that are classified as musculoskeletal disorders. They have a defined pathophysiology that leads to the development of the characteristic taut or hard band in muscle that is tender and that refers pain to distant sites. Low back pain can be regional or generalized. If a Low back pain becomes chronic, it tends to generalize, but it does not become fibromyalgia. It can be classified both as a primary disorder without other medical illness, or as a secondary pain syndrome that occurs as a result of another process. Low back pain may persist long after the initiating event or condition has passed, but it is nonetheless a muscle disease that can be satisfactorily treated.

RECOMMENDATION

The very high level of current study demonstrated that gluteus medius weakness and gluteal Tenderness to palpation is common in people seeking physical therapy care for chronic low back pain. This weakness and tenderness is not seen in a healthy population. This can be done by providing safe and caring environment and the community. This will help adolescents grow as strong individuals who are able to cope with distress and succeed in life despite adversities.

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