



The Effects of Stabilization Exercises and Cognitive Behavioral Therapy in People with Chronic Low Back Pain



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Opinion

The lifetime prevalence of non-specific chronic low back pain (LBP) is estimated at 60-70% in industrialized countries which is a common health problem worldwide. Approximately 5-15% of LBP cases can be attributed to a specific cause (i.e. osteoporotic fracture, neoplasm or infection) while for the remaining 85-95% the specific cause of LBP is unclear [1,2]. LBP is the leading cause of activity limitation and work absence throughout much of the world, imposing a high economic burden on individuals, families, communities, industry, and governments [3,4]. It is known that 80% of patients with acute LBP are recovering within 6 weeks, while 7-10% of the patients with LBP become chronic (longer than 7-12 weeks) which has a very poor prognosis with recovery leading to work absence and economic loss [5]. Chronic LBP is a neurophysiological disorder affected by multiple factors (such as individual characteristics, working conditions like heavy physical work, bad working postures, lifestyle factors and psychological factors) which may lead to fear of pain causing activity limitations and decrease in participation. Due to prolonged period of pain caused by LBP patients may gradually decrease their occupational work-related activities and other physical activities [6].

Weakening of the superficial trunk and abdominal muscles and insufficient motor control of the deep trunk muscles, such as the lumbar multifidus and transversus abdominis are amongst the physical consequences of LBP. Lack of awareness of back health and decreased physical activity level leads to muscle weakness of the "core" which has been described as a central column with the abdominals in front, paraspinals and gluteal in the back, the diaphragm as the roof, and the pelvic floor and hip girdle musculature as the bottom which provides stability to the spinal column [7]. Lumbar multifidus muscle has a very important role in maintaining the spinal stability. Regaining the strength and endurance of lumbar multifidus muscle is considered essential for restoring the proper function of the "core". Therefore, recruiting and strengthening the lumbar multifidus muscle is very important part of rehabilitation to improve functions in patients with LBP. It is stated that the spinal

mobility is as important as spinal stability. Movements of the spine is necessary to disperse forces and minimize energy expenditure. The rigidity of the spine increases the energy consumption and loading of the spinal segments. There are still questions in the literature for the clinical significance of spinal stabilization [8,9]. There is evidence of loss of function in deep muscles that provides stabilization in patients with LBP. In addition, it has been reported that latissimus dorsi, superficial paraspinal and abdominal muscles supports the lumbar stabilization, especially in weight bearing. It is suggested that these muscles should be included in lumbar stabilization programs. It has been shown that people with chronic LBP have weakness of "core" muscles and that the motor control of these muscles are impaired. In systematic reviews it is stated that stabilization and strengthening programs are useful in the treatment of LBP [10,11]. Improving athletic performance, relieving back pain and preventing injuries are amongst the benefits of core stabilization. A stabilization exercise, especially by increasing the activation of the atrophied multifidus muscle, increase the lumbar stabilization and increases the muscular support against the possible stresses [12]. There is insufficient evidence for the appropriate exercise programs for core muscle strengthening in individuals with chronic LBP [13]. The start of this modern era in chronic pain treatment began with the publication of the gate control theory of pain, emphasizing the importance of cognitive and affective, as well as sensory, influences on pain. Pain is influenced by biological, psychological, and social factors and optimally managed by treatments focusing on psychological and social influences besides its biological causes [14]. It is indicated that back pain circuits shift from the nociceptive center to the emotional center within 12 months of onset [15]. It is known that patients with chronic pain experience anger. Undiminished anger, on the other hand may create a hypervigilant state of arousal and magnifies the pain [16]. Central sensitization is the response by reducing the inhibition of the inflammatory or injured somatosensory nervous system and increasing the excitability of nociceptive nerve fibers. Central sensitization spatially and perceptually reduces the pain

threshold of a person and leads to hypersensitivity [17]. Pain pathways, mental and physical, are structurally imbedded and it takes neuroplastic reorganization to recover from chronic pain [18]. It is indicated that chronic pain reduces both gray and white matter volume in pain processing regions and the pain brain map grows and the motor cortex map shrinks. Fortunately, these maps can be reversed with treatment [19].

Cognitive behavioral therapy (CBT) was found to increase grey matter volume in the brain [20]. In the literature, CBT in spinal pathologies (cervical-lumbar) has been found to have important effects on reducing pain and disability and improving function [21-23]. The CBT aims to reduce the pain and psychological distress in order to improve physical and role functions by decreasing maladaptive behaviors, increasing adaptive behaviors, identifying and correcting maladaptive thoughts and beliefs, and increasing self-efficacy for pain management [24]. CBT plays an important role in patients' self-definition, learning to cope with pain and consequences. The disease provides physical and psychosocial recovery to reduce pain in specific activities (gradual increase, sequencing, actual treatment, etc.) with cognitive (cognitive restructuring, cognitive restructuring, imagination and relaxation techniques etc.) and behavioral modifications [25-27].

There is need for further research to answer the questions about 'which therapy approaches (e.g. spinal stabilization exercises, CBT) are more effective for the treatment of LBP?', 'does it work better if we include the patients in the treatment program?' or 'which patients benefits more from the treatment?'. Patients with LBP would also be a partner in a shared decision-making process with clinicians and they must have higher internal locus of control (individual believes that he/she is responsible for his/her own health). It is an indisputable fact that increased knowledge of patients about the LBP and guiding them within the therapy will increase the efficacy of the treatment. Researches should be done for identifying the place of the patients in the treatment which might be more cost-effective approach for the treatment of LBP and to reduce the economic burden of the health care systems and governments.

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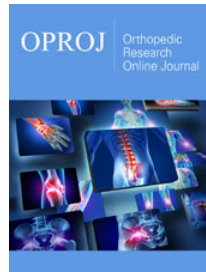
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