

# Therapeutic guidelines in chronic low back pain

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## Abstract

Chronic low back pain is a heterogeneous group of disorders with recurrent low back pain over 3 months. The high incidence of lumbago is an important phenomenon in our industrial society. Patients with chronic low back pain often receive multidisciplinary treatment. The bio approach, the psycho-approach, and the social approach optimally reduce the risk of chronicity by providing rehabilitation for patients with persistent pain after the initial acute phase. Damage to the structures of the spinal cord and the occurrence of low back pain as a result of evolutionary, social and medical causes disrupt the rhythm of life and cause less or greater disability. Recovery of patients with low back pain is not limited only to influencing the pain syndrome but requires the implementation of programs to eliminate the complaints that this pathology generates in personal, family and socio-professional terms.

This paper aims to familiarize the audience with the medication used, and the programs for active recovery in patients suffering from chronic low back pain.

## Keywords

chronic low back pain, therapy

## Introduction

Chronic low back pain is a heterogeneous group of disorders with recurrent low back pain over 3 months. They are associated with the disease of the century (Becheva 2014). Chronic low back patients often receive multidisciplinary treatment. The bio approach, the psycho-approach, and the social approach optimally reduce the risk of chronicity by providing rehabilitation for patients with persistent pain after the initial acute phase (Becheva et al. 2011). Multidisciplinary treatment programs are often labor-intensive and require good collaboration between patients, the rehabilitation team and the corresponding work environment (Goranova 2009).

## Epidemiology of low back pain

The study of the risk factors clarifies the rules of behavior to be followed and helps to cope with this growing pathology (Zhelev et al. 2001). The risks of chronicity are less studied than the chronic effects of this disease over a long time (Bernard 2012). Risk factors are divided into three big groups: personal factors, biomechanical psychosocial factors (Popov et al. 2008) and occupational factors (Expertise collective 2000).

Recovery of patients with low back pain is not limited only to influencing the pain syndrome but requires the implementation of programs to eliminate the complaints that this pathology generates in personal, family and

socio-professional terms (Vakrilova Becheva and Traikova 2012).

## Medication treatment of chronic low back pain

The first step is related to the anesthesia and the interruption of the inflammatory processes. When choosing non-steroidal anti-inflammatory drugs, the possible side effects as nausea, stomach pain, vomiting should be specified. There are products with an improved safety profile. Non-steroidal anti-inflammatory agents such as Paracetamol, Ibuprofen, Dexketoprofen, Diclofenac – in the form of tablets, capsules, sachets, gels, and creams are recommended (Mancheva 2004).

The combination of non-steroidal anti-inflammatory drugs with group B vitamins is more effective than using non-steroidal anti-inflammatory drugs as a monotherapy. Corticosteroids have anti-inflammatory and anti-edema effects. They are used for disc herniation with nerve root compression or joint inflammation. Muscle rigidity further exacerbates the pain syndrome, so it is advisable to take muscle relaxants such as Tolperisone, and parenteral administration of Alcuronium chloride (Aloferrin), Pancuronium bromide (Pavulon), Pipecuronium bromide (Arduan) in a hospital setting (Kostov et al. 2010). Injectable treatment involves a local injection of anesthetics, corticosteroids, and drugs into the soft tissues, joints and other areas around the spine. The aim is to block nerve conduction, that is, to deal with pain. The injections may be in the form of an epidural block or administered locally in the adjoining muscles. In chronic pain, the combination of a steroid and an anesthetic locally is better than the administration of an anesthetic alone and has a longer-lasting effect. The use of antidepressants and anti-convulsant drugs has a good effect on chronic low back pain, reducing the pain and the severity of possible depressive symptoms (Kostadinov 2000).

## Programs for active treatment of chronic low back pain

Damage to the structures of the spinal cord and the occurrence of low back pain as a result of evolutionary, social and medical causes disrupt the rhythm of life and cause less or greater disability (Becheva and Gencheva 2011). In order not to deteriorate these patients' quality of life, it is necessary to establish programs for the overall response to complaints and objective functional deficits (Herisson 2000). Exercises to improve the mobility of the hip joints (Becheva 2013) stabilization exercises, as well as those for strength and endurance of the structures of the spine (Becheva 2015a) must be applied to achieve a good recovery of the aspects of motor and perceptual function of the spine.

Recommendations for the treatment of low back pain are undergoing major changes these days. These changes

can be summarized as a transition from passive to active treatment. There is consensus in the literature regarding the need for active exercise to treat low back pain without specifying which exercises are more effective (Todorova et al. 2015; Becheva 2016). Becheva recommends a kinesiotherapy program to restore the functionality of the spine based on improved neuromuscular protection. It is achieved by avoiding risky situations and training in articulate ergonomics, as well as by lumbo-pelvis stabilization and avoiding extreme positions. Programs with excellent results emphasize the stabilization of the corpse and the maintenance of the neutral position of the spine (Panjabi et al. 2001). It is important to recommend physical exercises that restore and maintain the normal activity of the lumbar spine (Becheva 2012). Most authors combine exercises to improve joint amplitude with exercises for muscle elasticity (Blain 2016).

Some forced exercises, especially flexion exercises, can lead to negative results. The extreme increase of spine mobility in some cases is associated with the recurrence of low back pain (De Gasquet 2016). Good lumbar mobility can prevent relapse in patients with low back pain. Sometimes it is only necessary to carry out light daily activities to prevent pain (Becheva 2015b).

In patients with low back pain, there is a loss of mobility in the hip joints, which results in a decrease in muscle elasticity in the ischiocrural group and m. iliopsoas (Mulchanova 2003), therefore, exercises are recommended for actively stretching the statically contracted muscles (Vakrilova Becheva and Traikova 2013). More work is being done on the mobility of the hip joints. Achieving the optimum volume of movement in these joints is of the utmost importance because it minimizes the load on the spine, thus protecting it while performing various activities (Vakrilova Becheva and Belcheva 2010).

Compared to healthy subjects, patients with chronic low back pain have decreased lumbar extensor strength as well as a very low endurance. Endurance values can serve as predictors of low back pain as opposed to force during maximal volitional contraction (Pollock et al. 2004). For this reason, exercises to strengthen the spinal cord extensors should emphasize the restoration of muscular endurance (Becheva and Viteva 2015) rather than muscle strength (at high workload and low repetitions).

Based on results of studies on changes in intradiscal pressure, Axler, McGill, and Nachemson state that it is necessary to exercise the abdominal muscles from the position of occipital lying with peeled blades because this position does not significantly increase the intradiscal pressure (Axler et al. 2001; McGill et al. 2000; Nachemson et al. 2001). Vakrilova Becheva, Viteva and Traikova study the effect of a kinesiotherapy program on weak and rapidly fatiguing body flexors. The authors find improvement in muscle strength as a result of a one-year follow-up of patients (Vakrilova Becheva et al. 2016).

Morphological changes – mm. multifidi atrophy are found in patients with chronic low back pain. This type of atrophy can persist for a long time after the symptoms abate and the risk of relapse remains (Dufour 2017). The

dysfunction of mm. multifidi is a result of intrasegmental instability and excessive vertebral rotation that can cause facet problems as well as disc ruptures (Ribinik et al. 2013). For these reasons, lumbar rehabilitation programs often include exercises to influence neuromuscular dysfunction (Vakrilova Becheva et al. 2012).

Very often, patients with low back pain have a deficiency in dynamic body control. Problems with proprioception can be a cause of lack of coordination at mm. multifidi in their capsule protector role. Damage to the nerve roots can also cause a peculiar weakness of mm. multifidi (Vakrilova Becheva 2008).

Exercise on unsteady terrains such as the Freeman Plateau or the Klein Ball is recommended for patients with chronic low back pain to improve proprioception. Sensory-motor reprogramming achieves unity in lumbo-abdominal-pelvic musculature through a multidirectional method (Le Cocq et al. 2010). Training should be progressive, up to the threshold of pain, with initially included static exercises, followed later by dynamic exercises with eyes open and closed (Vakrilova Becheva and Gencheva 2010).

In case of proven osteoporosis (Ivanova 2019), the exercise program should be individualized and aimed at posture adjustment, improving balance, gait, and coordination. Of particular importance is the training of the hip

muscles in order to strengthen and prevent the risk of falls. Osteoporotic individuals should avoid excessive leaning exercises, torso rotation movements (Ivanova et al. 2017), movements involving sharp, extreme amplitudes, or excessive loads (such as jumping), as well as lifting heavy objects, because the movements described may cause vertebral fractures (Pankova et al. 2015; Ivanova 2017).

## Conclusion

Chronic low back pain has been identified as a major cause of disability in many countries (Becheva 2014). This type of pathology is estimated to affect 60%–80% of middle-aged people. Intensive multidisciplinary rehabilitation is crucial, involving a physician (general practitioner), a kinesiologist, a neurologist, an ergotherapist and a psychologist, to achieve good functional recovery through reduction of pain symptoms (Carlier 2012), improvement of motor and static (stabilizing) function of the spinal muscles, as well as a significant reduction in the degree of disability (Becheva 2015c) in patients with chronic low back pain. This will contribute to the optimization of all aspects of the quality of life of patients and reduce the direct and indirect costs of society.

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