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BENEFITS OF ASSISTED WEIGHT TRAINING IN PATIENTS WITH CHRONIC LOW BACK PAIN

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Abstract
Pain is an individual experience that is affected by psychological, social and physical factors and should be treated as a pathology in itself. Low back pain is a mechanical pain located in the lumbar region and gluteal fold, which may or may not generate stiffness and consequently reduced functionality. Lumbosciatalgia, on the other hand, is when this pain and discomfort radiates to the limb, to one or two buttocks and/or to the posterior region of the thigh. This study is a literature review, with searches in the following databases: PubMed, Lilacs and Scielo, using descriptors such as "low back pain", "physical training", "strength training" and "low back pain". Low back pain is one of the most common causes of disability in modern society, with a prevalence of 60-85%; it is the second leading cause of seeking medical attention.Strength training and core stability improves the balance and endurance of the lumbar muscles, as well as activating the deeper muscle groups, reinforcing the fixity of the spine and reducing the stimulation of pain receptors in the tissues. This is why free weight training with higher intensity loads, or not, provides wide-ranging benefits for prevention and improved quality of life due to significant reductions in pain, improved posture, flexibility and strength endurance.

Keywords Pain; Osteoarticular pain; Chronic pain; Lower back pain; Back pain.

INTRODUCTION

Pain is an individual experience that suffers interference from psychological, social and physical factors and should be treated as a pathology in itself (OLIVEIRA et al., 2014). Contrary to popular belief, it is not necessary to find an injury as an argument for the painful sensation, which can limit capacities and abilities causing an unpleasant perception and intervening in daily life, usually arising to warn that something is not right (DOS SANTOS et al., 2021). According to the International Association for the Study of Pain (IASP), the current definition of pain corresponds to the individual emotionally and sensorially experiencing some unpleasant experience that may be related or simply similar to that of a potential or actual injury (OLIVEIRA et al., 2014). Low back pain is a mechanical pain located in the lumbar region and gluteal fold, which may or may not generate stiffness and consequently reduced functionality (PETREÇA et al., 2017). Lumbosciatalgia, on the other hand, is when this pain and discomfort radiates to the limb, to one or both buttocks and/or to the posterior region of the thigh (NATOUR, 2004).

In relation to its prevalence, in South America it is estimated that 7.2% of men and 8.8% of women have low back pain, especially in Brazil, where 25.4% of the population has the condition, causing individual damage and generating health costs and several absences from work (PETREÇA et al., 2017). According to the World Health Organization (WHO), around 80% of adults will suffer at least one acute back pain crisis in their lifetime, and 90% of these people will have more than one episode of low back pain (MELO FILHO et al., 2013).

According to epidemiological studies, low back pain is the main cause of disability in people under 45 years of age, affecting between 50% and 90% of adult individuals at some point in their lives, interfering with routine activities such as sitting, walking and getting up, generating a significant impact on individuals' lives if left untreated, as it affects ligaments, tendons, muscles, joints, bones and intervertebral discs. Unfortunately, it can progress to worsening of the condition and consequently more severe illnesses (BRAMBILLA; PULZATTO, 2020).

There are various types of treatment, both conservative and surgical, directly linked to the underlying pathology: disc herniation, spondylolisthesis, spondylosis, rheumatic diseases, lack of regular physical exercise, improper weight lifting and obesity. In cases of low back pain where surgery is not indicated, social, psychological, genetic and physical factors should be considered as part of the biopsychosocial approach to treatment (NATOUR, 2004).

Even in the most severe cases of chronic lumbar involvement (BRAMBILLA; PULZATTO, 2020), studies suggest that physical exercise has a therapeutic improvement and preventive action, helping to reduce pain symptoms, thus improving the functional state of the individual who achieves a better quality of life (FREIRE et al., 2014).

This is why exercise interventions have been recommended as a preventative and conservative therapy. Resistance training is an effective intervention that avoids the need for injection/infiltration or surgery (NATOUR, 2004). The evidence for resistance training in musculoskeletal recovery shows that it is more effective than aerobic, coordination, Pilates or mobilization training (MELO FILHO, 2013). This is why the aim of this study is to analyze the benefits of assisted weight training in patients with chronic low back pain.

METHOD

This research is a narrative bibliographic review that looked at scientific productions in order to understand aspects related to the benefits of assisted weight training for patients with chronic low back pain. The descriptors used were selected by consulting the Medical Subject Headings (Mesh). The Boolean operators "AND" and "OR" were used to combine the terms. Articles written in English and Portuguese, published between - and -, were selected from the following databases: Scielo, Lilacs and Pubmed, using descriptors such as "low back pain", "physical training", "strength training" and "low back pain".

Initially, the titles and abstracts of the selected articles were read. The articles were then read in full in the first stage. The following aspects of the selected studies were assessed: the impact factor of the journal in which the article was published; the results obtained; the characteristics of the sample and the period of publication.

RESULTS

According to the National Household Sample Survey (PNAB) of the Brazilian Institute of Geography and Statistics (IBGE) (Instituto Brasileiro de Geografia e Estatística, 2010), back pain, whether cervical, thoracic, lumbar or pelvic, is the second most prevalent health condition in Brazil (13.5%) among chronic diseases identified by a doctor or health professional, behind only hypertension with its 14%.

Low back pain is one of the most common causes of disability in modern society, with a prevalence of 60-85%; it is the second biggest cause of seeking medical attention, with between 15 and 20% of adults experiencing the symptom at any one time, with 90% having a non-specific cause (KRISMER, TULDER, 2007).

Some research shows that the costs of low back pain to the government, industry and business are around US$ 50 billion a year (STUMP et al., 2016). Therefore, as a way of alleviating this condition, physical activity and physiotherapy will reduce these costs, since fewer days of work will be lost and the injured individual will recover more quickly in the event of accidents.With this data, we can emphasize the role of exercise in the prevention of chronic low back pain, which will

lead to a reduction in hospital overload, offer a better quality of life, increase productivity and years of work (STUMP et al., 2016; BRAZIL et al., 2011; Ministério da Previdência Social, 2020).

DISCUSSION

The literature points to evidence of altered postural and movement patterns and protective behavior common in patients with CLBP (VAN DILLEN; MALUF ; KATRINA, 2009). Faced with pain-related fear, they modify the dynamics of their movements, limiting lumbar spine movement during work, habitual and/or physical exercise (THOMAS; FRANCE, 2007). It has been proposed that repetition and aligned and modified movements result in localized regions of tissue stress. In training athletes, the use of free weight exercises is considered effective for increasing strength, improving motor control and altering muscle structure (HAFF, 2000).

In patients with CLL, alterations in muscle composition can occur, showing high levels of activity in the erector lumborum muscle and other muscles in the posterior chain, such as the paravertebral musculature (SWINTON et al., 2012). As can be described in the execution of the deadlift, a free weight exercise in which the bar is lifted off the ground in a continuous knee and hip extension movement (BERGUND et al., 2015). It is an exercise with greater activation of the paraspinal musculature compared to others, and can be interesting for patients, requiring a more inclined posture when sitting and less activation of the lumbar multifidus muscle (GORDON; BLOXHAM, 2016).

The combination of exercises is an option for reducing low back pain and is also a less expensive alternative, since it does not require pharmacological treatment (PETREÇA et al., 2017). Muscle strength, flexibility, stretching and neuromotor exercises are among the physical practices recommended by the American College of Sports Medicine (ACSM, 2020). Even though there is no consensus or rule on the type of exercise, it is recommended that individuals with low back pain remain physically active and avoid bed rest, except during an acute pain condition or after it where impacts should be avoided during this period, returning to practice progressively after the normalization of this episode(DOS SANTOS et al., 2021).

Core strength and stability training improves the balance and endurance of the lumbar muscles, as well as activating the deeper muscle groups, reinforces the fixity of the spine, reduces the stimulation of pain receptors in the tissues, decreasing the levels of inflammatory substances, acting to relieve pain (WELCH et al., 2015). In addition, this type of training has the role of promoting the growth of blood capillaries, optimizing the supply of oxygen as well as the removal of metabolic waste that reduces body temperature, promoting better nutrition of muscle tissue (BRAMBILLA; PULZATTO, 2020).

A high-load lifting exercise routine consisting of progressive deadlifts and low-load motor control exercises results in significant improvements in pain intensity, endurance and strength. However, it is worth emphasizing that the load progression must be gradual and the range of movement must be preserved and well executed, taking into account the biomechanical and physiological pattern of each individual, in order to prevent injuries (ASA et al., 2015).

CONCLUSION

Studies show that as a therapeutic option, free weight training with higher intensity loads, or not, provides wide-ranging benefits for the prevention and improvement of bodily injuries, with emphasis on the prevention of improved physical conditioning, muscle and joint strengthening, significant reductions in pain, improvement in the quality of life of individuals, posture, improved flexibility, strength endurance and disability of the patient.Therefore, it is beneficial for patients with chronic low back pain to perform assisted training, not only for issues related to pain, but also for mental, emotional and physical health.

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