THE EFFECTS OF RESISTANCE TRAINING ON THOSE WITH CHRONIC LOWER BACK PAIN

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Introduction

Chronic lower back pain (CLBP) is a predominant issue, and it continues to rise exponentially. Treatments such as prolonged rehabilitation have shown some positive effects in easing pain levels. Rehabilitation is a noninvasive technique that can be performed in the comfort of one's home with limited equipment necessary. Research suggests that certain therapies might be more effective than others. The following review of literature will analyze the impact of resistance training on individuals with chronic lower back pain using numerous training methods.

Research Question

Resistance training appears to be an affective rehabilitation tool for chronic lower back pain. This study aims to synthesize the studies on the topic and compare its affects across variables such as age, gender, race, and other diagnosed diseases.

Anatomical locus of CLBP.

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Resistance bands and dumbbells are the most common pieces of equipment used for resistance training.

Background and Literature Review

Kell, Risi and Braden (2011) explore resistance training with the intention of increasing muscular strength and endurance through periodized musculoskeletal rehabilitation (PMR). The study evaluated two-day (2D), three-day (3D), and four-day (4D) training sessions per week (Kell, el al., 2011) along with a control group. Statistically significant measurements taken at week nine revealed that the 2D group decreased from 5.79 (± 0.88) to 5.10 (± 1.01), 3D from 5.80 (± 1.00) to 5.01 (± 0.90), and the 4D group decreased from 6.05 to (± 0.90) to 5.09 (± 0.90) (Kell, el al., 2011). The next assessment compared weeks 9 to 13, finding only the 4D group had a statistically significant decrease. The control group did not show a decrease in pain level at any time.

Lee and Kang (2016) analyzed strength training, in the form of resistance training, and walking in overweight individuals with CLBP. Individuals were divided into three groups: a control group (CG) that did not participate in any exercise, a strength exercise group (SEG), and a group that did both strength training and walking (CEG). After 12 weeks, both exercise groups showed a significant decrease in VAS score (Lee and Kang, 2016). Lumbar function was assessed through testing back muscle strength (kg) and sit and reach (cm). Back strength in the SEG and CEG increased from 52.2 (± 25.3) to 81.8 (± 27.0) and 46.8 (± 18.2) to 78.0 (± 26.3), respectively (Lee and Kang, 2016). Flexibility in the two exercise groups was increased from 4.3 (± 10.3) to 10.2 (± 10.9) and from 2.0 (± 10.8) to 7.7 (± 8.3), respectively (Lee and Kang, 2016). The control group had no significant change.

Iversen, Vasseljen, Mork, Gismervik, Bertheussen, Salvesen and Fimland (2018) compared the results of multidisciplinary rehabilitation (MDR) performed with elastic resistance band training (ERB) to MDR performed with general physical exercise (GPE). The ERB group and GPE group formed their respective methods of training at the same frequency, and the control group performed normal MDR, multidisciplinary rehabilitation therapy (Iversen, el al., 2018). Both GPE and ERB showed a statistically significant decrease in *current* pain level from a mean of 4.9 and 4.4 at baseline to a mean of 3.4 and 4.0, respectively, after 12 weeks of training (Iversen, el al., 2018). There was not enough evidence to conclude that one method of rehabilitation was more effective than the other.

In contrast, Cortell-Tormo, Sanchez, Chulvi-Medrano, Tortosa-Martinez, Machando-Lopez, Llana-Belloch and Perez-Soriano (2018) analyzed the effects of functional resistance training on females. The exercise group participated in functional resistance training (FRT) which involved multi-joint and multiplanar training resembling everyday movement (Cortell-Tormo, el al., 2018). The Oswestry Disability Index (ODI) was used to measure disability at week zero and week 12. The control group's score indicated no major change; the exercise group's score decreased from 15.5 (± 8.4) to 6 (± 6.1) revealing a drastic decrease in disability (Cortell-Tormo, el al., 2018). Functional resistance training was proved to be an efficient measure for chronic lower back rehabilitation.

SIGNIFICANCE

A very high percentage of the general population suffers from unspecified chronic lower back pain. These individuals have no choice but to live their lives in constant pain. There should be a solution to bring some comfort into their lives. If resistance training is proven to decrease CLBP, then these individuals can ease their pain in the comfort of their own home.

METHODS

Materials

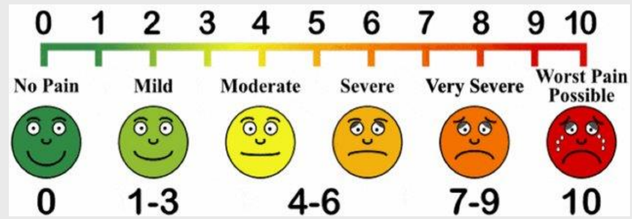
Secondary sources will be obtained from the Medline Central database. Journals articles from Medline Central and National Institutes of Health (NIH) will be used to reveal to what extent resistance training decreases chronic lower back pain and related variables. Data collected from trials measuring resistance training, making comparisons to general physical activity, measuring quality of life, measuring pain levels through VAS, and measuring disability will be used to solidify this research.

Procedure

CSU Stanislaus's library website will be used to reach the Medline Central database. Various journal articles will be located using key words such as "resistance training" and "chronic lower back pain". Articles will be filtered via reliability and date published; they will be screened to see if they are peer-reviewed and published recently. A few articles dating back to 20 years ago may be included but will be limited. The NIH website will be explored for similar articles. Data will be collected from numerous journals and compared to determine how resistance training alters certain variables on individuals suffering from CLBP.

Inclusions

Participation in the synthesis of literature for this study is limited to the inclusion factors associated with each study. For the purpose of this synthesis of literature, studies were based on overweight individuals, females, and middle-aged adults. All participants were diagnosed with chronic lower back pain.



The VAS scale is used to measure pain level.

CONCLUSIONS

The effects of resistance training on individuals with chronic lower back pain have been investigated through numerous variables such as pain level, volume of resistance, and disability. While resistance training appears to be effective in managing and decreasing pain, results vary across different populations. Variables such as gender, race, age, and other diagnoses must be considered. Further research should validate whether resistance training decreases CLBP in all affected populations or not.

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