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THE EFFECT OF ISOSTRETCHING IN TREATING LOWER BACK PAIN IN COLLEGE STUDENTS

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Abstract:

Chronic low back pain is a symptom located in the lower region of the back due to an abnormal change in this region. Among the methods to promote the relief of this symptom, the isostretching can be included, considered as a global postural method. The study included 10 subjects aged between 19 and 29 years. In the first stage they were treated at home for a month and in the second stage of the research they have been evaluated the following items in a separate evaluation form, and were treated for to 15 sessions. We observed significant improvement in back pain among the participants during treatment due to isostretching method, where the average mean value was 6.40 ± 0.69 before treatment and 2.40 ± 0.54 was after treatment. The 3rd finger test soil was demonstrated and according to the results obtained before and after treatment increased flexibility, the average value was 17.50 ± 5.40 before treatment and later was 10 05 ± 3.79. Regarding the Schober test it showed slight improvement. The mean value was 15.11 ± 0.59 before and 15.50 ± 0.64 was later. The results reported in this study show that the Isostretching method has not shown significant improvement in the mobility of the spine of the research participants, according to the analysis of data obtained by measuring with the Stibor and Schober tests. The method proved to be effective in improving chronic low back pain and increasing the flexibility of hamstring.

Key Words: Low Back Pain, Isostrecthing & Flexibility

Introduction:

Low back pain is being currently considered a major public health problems, for reaching most of the population and thus entail high cost to health systems. Low back pain often causes the removal of people from their daily activities, social and labor.

Chronic low back pain is a symptom located in the lower region of the back that is due to an abnormal change in the region and is considered one of the major factors of morbidity and disability.(1,2)

Low back pain is classified into specific and nonspecific. Low back pain called specific is due to a known cause and diagnosis has very well defined. In contrast, nonspecific low back pain are idiopathic, i.e. do not have known cause, have non defined diagnosis and accounting for 80% of all cases reported in adult patients with low back pain and it affect mainly the individuals between 20 and 55 years. The nonspecific low back pain in most cases of pain reported by the population. Usually occurs due to imbalance between the functional loads that is imposed in excess to the ability of the individual while performing their daily activities. (3)

Low back pain is caused by multiple factors, including demographic and socioeconomic causes, sedentary lifestyle, smoking, increased survival, obesity, poor posture for long periods at work. There are several theories for the genesis of pain in the lower back, among them underactive of the paraspinal muscles is responsible for the destabilization of the spine in young people with low back pain.(4-7)

Back pain limits physical fitness, the emotional and cognitive people, especially college students and may cause changes and/or limitations in aspects of quality of life and functional capacity. Currently the occurrence of this painful condition have greatly increased in adolescents and young adults, with a percentage ranging from 30 to 51%.(8,9)

It is believed that the appearance of these symptoms occur by some changes in the spine biomechanics. These changes caused by excessive functional load and incorrect postures are checked routinely by the students when they develop their academic activities and ergonomic features.(10)

The Isostretching is a global postural gymnastics technique based on a balance of therapeutic exercise that emphasizes stretching and muscle strengthening. Through it, they can relieve muscle tension and avoided compensation which encourages changes in the spine. The exercises are made through postures in which they are prioritized isometric strengthening, lengthening the global muscles, breathing, self-growth and the proper position of the hip and spine. Therefore, the method is considered corrective, educational, preventive, plasticizer and toning. (3, 10, 11)

This therapeutic approach is used to treat people who are with chronic painful diseases, providing conditioning and limiting compensatory movements. There are principles that correct body posture and foremost sets results in people with back pain. (12)

The exercises of this technique are performed with the utmost correction of the spine, prompting by self stretching. As a result, this method provides body awareness, increase muscle flexibility, improve neuromuscular control, joint mobility, muscle tone, strength and breath control. (13)

Thus, the aim of this study was to evaluate the technique of isostretching and its effect on low back pain in college students.

Methods:

All subjects were informed about the objectives of the study and signed the informed consent form prior to admission in the experiment. The same study was designed as a prospective case, whose nature is analytical with a quantitative approach, where it verified the effects of isostretching in the treatment of low back pain in college students.

The data were collected in SNS Groups of Institutions in Coimbatore city, whose criterion of choice was intentional. The sample consisted of 10 participants chosen at random, were used as inclusion criteria: subjects aged between 19 and 29 years, college students with chronic nonspecific low back pain, persistent for more than three months and they were not taking any treatment for low back pain and also found a sedentary.

Exclusion criteria were subjects with musculoskeletal injuries in other joints that isostretching is contraindicated, diseases that impair cognition, subjects with a history of back surgery, pregnancy, people with cardiovascular and/or cardiorespiratory diseases with exercise contraindication.

The research followed in two stages.

In the first stage the participant were submitted to treatment, filled the diary of low back pain at home for a month, in which there was objective information about the intensity of low back pain, reported by the patient in the course of the week, based on the visual analogic scale (VAS) values. During this step the researcher maintained contact with participants assessing them on a daily basis. The Isostretching was carried out with the frequency of three week sessions, totalling 15 meetings, for five consecutive weeks, with an average duration of 40 minutes each service. In each service positions were held in the supine position, leaning, sitting and standing, and the time spent in each position was governed by expiration. They were held six repetitions in each posture. Progressions were made during the search in the third week, with the evolution and the level of difficulty of the positions that were already being carried out by and increased by requesting to increase the stretch when performing these postures and in the fourth week, the ball and the bat were included during the performance of postures.

During the assessment the participant was instructed on the placement of the pelvis in anteversion or retroversion which was determined by the participant's position has not yet walked on respiration, which includes a profound and prolonged exhalation from 6 to 10 seconds or more.

In the second stage of the study participants completed the treatment sessions and underwent an assessment. The evaluation was conducted following the steps of an evaluation form, where they were collected the following data were collected by the age, weight, height, BMI, pain reported by the patient based on the VAS of pain, the third finger to soil test in cms and Schober test in cms.

The variables were pain intensity by VAS pain registered in the evaluation form and Low Back Pain Diary, flexibility of lumbar spine measured with the third finger to soil test and mobility of the lumbar spine through the Schober test.

Results:

After being held for 15 consultations with Isostretching method, the researcher noticed a difference between the results of tests performed before and after treatment at the end of the stage2

In Table 1, shows that there is no significant change in Schober test, during tilting, with isostretching method and before treatment, the average value was 15.11 ± 0.59 and at the end it was 15.50 ± 0.64. The statistics showed that, after treatment, the significance of the Schober test (p = 0.9173) was not effective.

Table 1: The presence of nociceptive troublesome and flexibility rating before and after treatment

Variables	**Before Treatment**		**After Treatment**		
	M	**SD**			
Spine mobility (cm)	15.11	0.59	15.50	0.64	0.9173
Flexibility (hams) (cm)	17.50	5.04	10.05	3.97	0.0032**
VAS	6.40	0.69	2.40	0.54	0.0003***

In relation to the third finger to the soil test, increasing flexibility has been evidence, that the average value was 17.50 ± 5.04 before treatment and after treatment it was 10.50 ± 3.97. Statistical analysis showed that at the end of treatment flexibility increased in all study participants (p = 0.0032) also as shown in Table 1.

It was also observed that a significant improvement in pain assessment, made by the VAS, where the mean value was 6.40 ± 0.69 before treatment and at the end it was 2.40 ± 0, 54. Statistical analysis showed that at the end of treatment, the pain decreased (p = 0.0003).

Discussion:

Isostretching promotes elongation from a static isometric contraction, which is very effective for increasing the flexibility of hamstrings, being justified by facilitating firing of the Golgi tendon organ by slow

static stretching, which generates the inhibition of the stretched muscle, in turn which results in vasodilatation of the constricted blood vessels.This fact could justify the amplitude gain in the third finger to the soil test in this study.

It invades the muscle elastic constraint of the patient, the point from which the tissue does not return to its original shape and size.(15) The methodology of this study does not say whether the flexibility gain represented plastic changes .

The mobility of the posterior musculature is usually verified by the 3rd finger to the soil test.(16) Regarding the flexibility, this study obtained similar results to studies seeking to verify the improvement of postural changes, pain and quality of life. These were performed with the same method, but had participants with different dysfunctions.(17,18)

Increased flexibility can favour the improvement of chronic low back pain, as it was seen that this can be one of the causative factors of this dysfunction. Muscle shortening of the hamstrings can cause back pain as a result of improper positioning of the pelvis still being able to promote various postural changes.(12)

Isostretching method demonstrates efficacy in reducing low back pain from the use of the self-growth of the isometric contraction and muscle stretching, and a slow and prolonged exhalation. With these features, the method improves the muscle imbalance in capabilities, promoting the development of muscle strength, improved disability and decreased pain.(4) This study can verify this improvement in pain and according to the above cited studies that could It is justified by improved flexibility such as the hamstring muscles, which are tested in the third finger to the soil test.

In a study, there was an increased flexibility with isostretching, this study evaluated the flexibility from data measured with the third finger to soil test before and after 10 sessions with this intervention. This technique prevents the compensatory rotation by means of a powerful contraction of antagonistic muscles.(12) These data justify that the present study where it was observed that there was also a significant increase in flexibility, which was evaluated in the same way as the research mentioned above.

This method works in pain improvement by strengthening the deep paraspinal muscles. It has been seen that the weakness in this muscle can lead to painful condition in the lower back.(8) In other research, which aimed to evaluate the effects of isostretching on the improvement of low back pain, also justified the reduction of pain symptoms from strengthening these muscles.(4,20)

The isometric contraction in isostretching happens statically and the shortening of the contractile elements brings the stretch of the elastic elements that act in series. This stretching occurs in suchaway that a few muscle groups are contracted and others are relaxed, while others are at different degrees of shrinkage. This uncontrolled organization sponsored by the elastic elements in series has the function of absorbing the various strains.(12) It was expected a significant improvement in mobility tests of the lumbar spine and Schober, since the method provides reduction of muscular tension. However it did not, it is believed that one reason may be the difficulty in the participant's perception to perform an isometric contraction in the paraspinal muscles.

Conclusion:

The results reported in this study show that the Isostretching method did not show significant results in the mobility of the lumbar spine of participants, according to the analysis of data obtained by measuring with the Stibor and Schober tests. The method proved to be effective in reducing chronic back pain and increasing the flexibility of hamstring muscles.

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