

PILATES FOR LOW BACK PAIN

ПІЛАТЕС ПРИ БОЛЯХ В ПОПЕРЕКУ

Paweł Choroszewicz, Anna Maria Bach

Nicolaus Copernicus University in Torun, Collegium Medicum in Bydgoszcz, Poland

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Abstract. Chronic lower back pain is an increasingly common complaint. Not only do elderly people complain of it, but young people are also increasingly affected. According to the literature, chronic lumbosacral pain is pain that persists for more than three months.

Currently there is no single effective method to get rid of the pain. Therefore, several different methods have been developed over the years that are used with positive results for this ailment. One of these is Pilates training. This method was developed during the First World War. Joseph Pilates, as a sanitarian, started using springs attached to a bed, which gave resistance to the limbs of injured soldiers. After some time it was noticed that the applied technique results in faster recovery.

Pilates training is based on 50 different exercises that can be performed on a mat or special equipment. Training sessions can take place individually or in organised groups. The intensity of the exercises depends on the capabilities of the participant, so they can be performed by people of different ages. Over the years, it has been noticed that Pilates training can be an effective tool in the fight against lower back pain. A number of positive effects of this training have also been noticed. Pilates exercises reduce pain, improve functionality and quality of life. Muscles become more flexible, dynamic balance improves, muscular endurance increases.

Pilates training is based on several important principles, the observance of which is an essential element. These principles include: activation of muscles, focusing on breathing and correct execution of exercises, smooth transition between exercises. This training is based on the mind-body principle.

The following article discusses research on the effectiveness of Pilates training sessions in reducing lower back pain. Articles comparing the Pilates method with other commonly used methods to eliminate pain were analysed.

Key words: Pilates, low back pain, training.

Хронічні болі в попереку – все більш поширена скарга. На це скаржаться не тільки люди похилого віку, але й молоді люди все частіше страждають. Згідно з літературою, хронічний попереково-крижовий біль - це біль, яка триває більше трьох місяців.

У даний час не існує єдиного ефективного методу позбавлення від болю. Тому протягом багатьох років було розроблено кілька різних методів, які використовуються з позитивними результатами для цієї недуги. Одним з таких є тренування з пілатесу. Цей метод був розроблений під час Першої світової війни. Джозеф Пілатес, як санітар, почав використовувати пружини, прикріплені до ліжка, що давало опір кінцівкам поранених солдатів. Через деякий час було помічено, що застосовувана техніка призводить до більш швидкого відновлення.

Навчання пілатесу базується на 50 різних вправах, які можна виконувати на килимку або спеціальному обладнанні. Навчання можна проводити окремо або в організованих групах. Інтенсивність вправ залежить від можливостей учасника, тому їх можуть виконувати люди різного віку. З роками було помічено, що тренування з пілатесу можуть бути ефективним інструментом у боротьбі з болями в попереку. Також було помічено ряд позитивних ефектів цього тренінгу. Вправи пілатес зменшують біль, покращують функціональність та якість життя. М'язи стають більш гнучкими, поліпшується динамічний баланс, збільшується м'язова витривалість.

Навчання пілатесу ґрунтується на кількох важливих принципах, дотримання яких є важливим елементом. Ці принципи включають: активізацію м'язів, зосередження на диханні та правильному виконанні вправ, плавний перехід між вправами. Цей тренінг базується на принципі розум-тіло.

У даній статті обговорюється дослідження ефективності тренувань з пілатесу для зменшення болю в попереку. Були проаналізовані статті, що порівнюють метод пілатесу з іншими широко використовуваними методами усунення болю.

Ключові слова: пілатес, біль у попереку, тренування.

Introduction. Chronic lumbosacral pain is defined as pain lasting more than three months [11]. Some sources consider sacral pain to be chronic only after 6 months of duration [22]. It is estimated that 10-30% of the adult population

in the USA have lumbosacral pain each year. Over a lifetime, 65-80% of people are affected [21]. The etiology of sacral pain includes musculoskeletal pain, intervertebral joint pain, sacroiliac joint pain, discogenic pain, and the effect of failed surgery [21].

One method considered effective for managing chronic sacral pain is Pilates exercises [23]. These exercises were created by Joseph Pilates. During the First World War he worked as an orderly in a hospital on the Isle of Man. He took care of injured soldiers. He attached springs to the beds on which they lay. In this way, this system supported the patients' limbs during exertion by giving the appropriate resistance. With time, it was noticed that the use of this method leads to faster recovery of patients and their efficiency [7, 13, 15]. In 1923, this method was introduced by Joseph Pilates in the United States [15].

In recent years, this method has been increasingly used as a rehabilitation tool for pain management [3, 26]. In addition to pain reduction, beneficial effects on functionality and quality of life have also been observed [19]. Training based on Pilates exercises has been shown to have a beneficial effect on reducing kinesophobia, which is associated with chronic non-specific sacral pain [9]. As a result of the exercises, the muscles of the trunk are activated which has a positive effect on the pain of this segment [1]. Apart from the benefits mentioned above, Pilates training also improves muscle flexibility, dynamic balance and increases muscle endurance [10, 12]. This training can be performed at different ages, both in adolescents and in older people [10, 31].

Pilates exercises are based on the mind-body principle. This training focuses on components such as strength, stability, flexibility, muscle control, posture, and breathing. Pilates exercises can be performed on a mat or with the use of special equipment [7, 15, 29]. When exercising on a mat, the resistance is the body weight. Exercises are performed in different positions. Each exercise is performed in repetitions from 3 to 5 times [13, 25].

Pilates training is based on several important principles. One of the fundamental ones is to activate the muscles of the trunk: transverse abdominal muscles, oblique muscles, diaphragm, pelvic floor muscles. Another principle is to focus all your attention on the correct execution of exercises. It is also important to control the movement and the posture, as well as the precision of performing the exercises. Breathing and exercising

according to its rhythm is also an important element. Attention should also be paid to a smooth transition between successive exercises [7].

Pilates training consists of a combination of 50 different exercises. The intensity of the training sessions can be individually adjusted to the trainee's abilities and to the effect that is to be achieved [13]. The muscles perform concentric, eccentric as well as isometric work. Progression is increased by changing the length of the lever, changing the centre of gravity, manipulating the effects of gravity and the base of support [15].

Pilates for low back pain. Pilates training has become one of the methods increasingly used to combat lower back pain. Several studies have demonstrated the positive efficacy of this intervention in relieving pain.

Valenza et al. tested the effect of a Pilates exercise programme in people with chronic non-specific sacral pain. Fifty-four participants were included in the study, in which sacral pain, lumbar mobility, flexibility and balance were analysed. Twenty-seven participants did Pilates exercises for 8 weeks, while the rest did not. At the end of the study, there was a big difference between the two groups. In the Pilates group, there was a definite reduction in pain, as well as an improvement in flexibility and balance [27].

Notarnicola et al. in their study tried to prove that a few Pilates training sessions performed every week are able to help reduce sacral pain. A prospective observational study was conducted for this purpose. The study involved 60 people with an average age of 51 years. There were both men and women among the volunteers. Half of the patients did Pilates training, while the control group did not undertake any activity. The study period was 6 months. During this time, those in the Pilates group did Pilates-based exercises 5 times a week. After this time, the researchers observed a significant improvement in the reduction of pain and disability in the Pilates group. Those who did not perform any activity during this time reported worsening pain and disability associated with it [20].

The effectiveness of adding Pilates exercises to physical activity in people with chronic back pain was also demonstrated in a study by Miyamoto et al. After 6 weeks of

exercise, people who exercised felt a big difference in pain and function. However, after 6 months these results were not statistically significant compared to the group not exercising [17].

Similar results were obtained in their study by Cruz-Diaz et al. They studied 64 patients with chronic sacral pain. Half of these subjects performed Pilates exercise-based training for 12 weeks and the others received no intervention. The results proved to be as positive as in the other studies. Pilates training was found to be effective in reducing back pain [6].

Due to the growing interest in Pilates Training, many researchers have attempted to investigate the effectiveness of this method of action in chronic sacral pain compared to other methods.

In 2017, Dekhordi et al. compared the effects of Pilates training and the McKenzie method on chronic sacral pain. Thirty-six men between 40 and 55 years of age participated in the study. All patients in the study reported sacral pain lasting for more than 3 months. The men were divided into three groups. The first group was subjected to the McKenzie method, the second group performed Pilates exercises, while the third group did not perform any activity. Those who participated in the Pilates classes performed hour-long exercises three times a week. The training sessions lasted for 6 weeks. After analysing the results of the study, no significant differences in pain reduction were found between the Pilates training group and the McKenzie group. However, there was a significant difference in pain between the no exercise group and the Pilates and McKenzie groups. Those who did not undertake any activity or therapy related to sacral pain declared a worsening of the situation. On the basis of this study, it can be concluded that both Pilates training and the McKenzie method are effective in chronic sacral pain [11].

Franco et al. in 2016 sought to test whether the use of interferential current prior to Pilates exercises was more effective than performing the exercises themselves. This study included 148 patients, both male and female. Those entering the study reported non-specific back pain. The age of the subjects ranged between 18 and 80 years. After 6 weeks of treatments and trainings (28 trainings in total), the patients

declared an improvement in their pain. However, there were no differences between those who received interferential currents before training and those who only did Pilates training [8].

Another study compared the effectiveness of lumbar stabilisation, dynamic strengthening and Pilates in chronic back pain. The effectiveness of these forms of exercise was tested on the basis of: pain, range of motion, strength and function before and after exercise. Forty-four people with sacral pain took part in the experiment. They were divided into the three previously mentioned groups. 10 exercise sessions were performed over a period of 3 weeks. It was found that there was a reduction in pain in all groups, and improvements in range of motion, functional ability, and trunk strength were also noted. It was also noted that significant improvement occurred in the lumbar stabilization group. Pilates, in turn, had an advantage over dynamic strengthening. The greatest reduction in disability was observed in the group performing Pilates exercises [2].

Kofotolis et al. In their study compared Pilates and trunk strengthening exercises in chronic sacral pain. 101 women participated in the above study. They were divided into three groups. The first was the Pilates group, the second the trunk strengthening exercises and the third was the control group. The women performed the exercises three times a week for 8 weeks. The women's pain, disability and quality of life were checked before the study, immediately after the experiment and 3 months later. The women in the Pilates group showed better results for quality of life and functional disability. Three months after completing the training series, the Pilates group continued to show better results than those in the trunk strengthening group [14].

In 2015, Yamato et al. conducted a systematic review based on studies on the effectiveness of Pilates in adults with sacral pain. After analysing the available studies, they concluded that Pilates is an effective method for sacral pain, however, in many cases it is as effective as other methods [30].

A 2014 systematic review by Wells et al. proves that Pilates exercises performed by people with back pain reduce back pain. Based on a randomized controlled trial, the researchers

concluded that Pilates exercise produced a statistically significant improvement in pain and performance compared to usual physical activity 4 weeks after the session. In contrast, there were no significant differences 24 weeks after the end of training [4].

Wajswelner et al. compared the effectiveness of Pilates therapy with general exercise in chronic sacral pain. Eighty-seven people aged between 18 and 70 years were enrolled in the study. The patients were divided into two groups. One group performed Pilates exercises and the other group performed general exercises. The volunteers performed the given exercises for 6 weeks under the supervision of a physiotherapist. The workouts were conducted twice a week for one hour. The effectiveness of both methods was checked at 6, 12 and 24 weeks after completion. At 6 weeks after the end of the training sessions, the researchers found no significant differences between the

two groups. In both cases the intervention was equally effective. Similar results were noted at 12 and 24 weeks. A general exercise programme as well as pilates exercises in this case were found to have a positive effect on pain, function and quality of life of people with chronic back pain [28].

Conclusion. Studies conducted to demonstrate the effectiveness of Pilates Training in lower back pain show that it is one method that produces positive results in these ailments. Studies comparing Pilates training sessions with other methods often show similar effectiveness, allowing the patient to choose the method that is right for them. When properly performed, the exercises can bring a number of benefits. As well as reducing pain, they improve dynamic balance, reduce disability and improve quality of life. Positive effects have also been observed in the long term.

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