


The Effectiveness of Pilates Exercise Programs in Patient with Chronic Low Back Pain

Nasereen Bobby*Pulse Physiotherapy & Acupuncture Clinic,
Bangalore, India***Corresponding author:** Bobby N nnbobby7@gmail.comDoctor of Physiotherapy, Pulse
Physiotherapy & Acupuncture Clinic,
Bangalore, India.**Tel:** 8344592384**Citation:** Bobby N (2020) The Effectiveness
of Pilates Exercise Programs in Patient with
Chronic Low Back Pain. J Physiother Res
Vol.4 No.6:5

Abstract

Introduction: Low back pain is common problem in population, Pilates exercises helps in reducing low back pain. Pilate's method focus on core strengthening, posture and coordination of breathing with movement and the method was developed by Joseph Pilates.

Aim: Aim of the study is to find the effectiveness of Pilate's exercises in relieving pain and in improving functional ability in low back pain.

Methodology: Pre and Post experimental study conducted to find the effectiveness of Pilates in relieving pain and in improving functional ability. 10 subject ages between 25 to 35 of both sexes were selected through purposive sampling.

Data collection: By using NPRS and modified Oswestry questionnaire.

Results: The mean score of pre-test and post-test showed significant difference at t value 8.43.

Conclusion: the finding of the study revealed that Pilates exercise was effective in relieving pain and in improving functional ability in low back pain.

Keywords: Pilates exercises; Low back pain; Modified Oswestry Questionnaire; The Numeric Pain Rating Scale

Received: September 02, 2020; **Accepted:** October 21, 2020; **Published:** October 28, 2020

Introduction

Musculoskeletal conditions (MSCs) are the most common cause of severe long term- pain and physical disability. The prevalence of back pain markedly increases with age and many patients also have some common life style issues.

The Pilates methods has recently become a fast growing popular form of exercise recommended for healthy individuals and those engaged in rehabilitation. Pilate's method emphasizes core strengthening. Posture and coordination of breathing with movement.

The low back pain (LBA) is defined as pain discomfort localized below the costal margin and above the inferior gluteal folds with or without leg pain. Pilate's method focuses on core stability muscle control breathing strength flexibility and posture this method was developed by Joseph Pilates [1,2].

Pilate's method involves conscious use of trunk muscles to stabilize the pelvic-lumbar region. These exercise can be performed using

specific equipment (equipment-based Pilates) or without specific equipment (also known as mat Pilates).

These exercises aim to improve static and dynamic stability as well as posture and movements in general [3].

Benefits of Pilates:

- Pilates trains muscles correct positions.
- Preventing injury when working hard.
- Pilates relaxes muscular tension and muscle stiffness, it is relieved effectively and smoothly.
- Pilates provides psychological relaxation- it helps the evacuation of stress, particularly through the importance of breathing.
- Pilates improves physical fitness- the physical benefits are numerous, such as gaining strength, flexibility.
- Pilates relieves joint problems- the gentle technique is a good way to relieve back pain, sciatica and other joint pain.

To some extent, can be expect a correction of scoliosis, lordosis and spine posture.

- Pilates provides rehabilitation- after recovering from an illness, it is the perfect technique to get back on feet [4-6].

Aim and Objectives

Aim

The aim of the study is to find the effectiveness of Pilates exercises in relieving pain and in improving functional ability.

Objectives

- To find the effectiveness of Pilates exercises for relieving pain by using numerical pain rating scale.
- To find the effectiveness of Pilates exercises for improving the functional activities by using modified Oswestry Questionnaires.

Need for the study

Low back pain is common problem in general population. Pilates exercise helps in reducing pain. It is apparent from the literature that low back pain is one of the society's major problems and solution must be sought. In the present investigation, the researcher tries to evaluate and treat the low back pain patients by using Pilate's exercises.

Materials and Methods

Materials

- Pilates mat
- Pen
- Sheet
- Numerical pain rating scale
- Oswestry questionnaire

Methods

Study design: Pre experimental and post experimental study design.

Study setting: The study is conducted in Out-patient department of Thanthai Rover College of Physiotherapy, perambalur.

Samples method: Purposive sampling method

Sample size: A total number of 10 patients

Study duration: The study was conducted for a period of 3 months

Inclusion criteria:

- Age between; 25 to 35 years.
- Both males and female.
- Patient having chronic low back pain with more than 3 months of duration.
- Low back pain with non-specific nature (mechanical).

- Without identifiable specific anatomical or neurophysiologic causative factors.

Exclusion criteria:

- Patient with nerve root pain signs.
- Patients with previous spinal surgery.
- Spondylosis.
- Spondylolisthesis.
- Past history of vertebral fractures.
- Systemic disorders like tuberculosis of spine or rheumatoid arthritis.

Outcome measures

Numeric Pain Rating Scale (NPRS): The Numeric Pain Rating Scale [NPRS] is uni dimensional measure of pain intensity in adults, including those with chronic pain.

Contents: The NPRS is a segmented numeric version of the respondent selects a whole number (0-10 integers) that best reflects the intensity of his/her pain (**Figure 1**).

Interpretations

- 0 : No pain [0%]
- 1-3 : Mild pain [25%]
- 4-7 : Moderate pain [50%]
- 7-10 : Severe pain [75%]
- 10 : Maximum pain [100%]

Modified Oswestry Questionnaires

Name: _____

Date: _____

Age: _____

Modified Oswestry low back pain disability questionnaire

This questionnaire has been designed to give your therapist information as to how your back pain has affected your ability to manage in everyday life. Please answer every question by placing

0-10 Numeric Pain Rating Scale

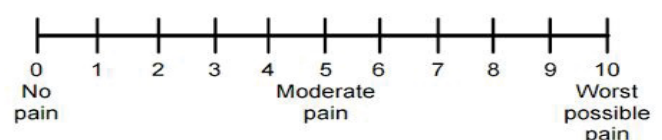


Figure 1 0-10 Numeric Pain Rating Scale.

a mark in the one box that best describes your condition today. We realize you may feel that two of the statements may describe your condition, but please mark only the box that most closely describes your current condition.

Score _____/50 × 100= _____% points

Scoring: For each section the total possible score is 5; if the first statement is marked the section score=0, if the last statement is marked it=5. If all ten sections are completed the score is calculated as follows; Example; 16 (total scored) 50 (total possible score) × 100=32% if one section is missed or not applicable the score is calculated; 16 (total scored) 45 (total possible score) × 100=35.5% minimum detectable change (90% confidence); 10% points (change of less than this amount may be attributed to error in the measurement) [7,8].

Structured exercise protocol is presented in Table 1.

Data analysis and interpretation is presented in **Table 2.**

The table represents the mean values, mean difference between pre-test v/s post-test values of NPRS test (**Tables 3 and 4, Figures 2 and 3**).

The table represents the mean values, mean difference between pre-test v/s post-test values of questionnaires (**Table 5**).

Results and Discussion

Result show that the Pilates exercises is effective in relieving pain and in improving functional abilities in patient with chronic low back pain. It is observed that pre and post-test show the significant difference in values before and after the treatment of exercises protocol.

Table 1: Structured exercise protocol.

S. No.	Exercises	Repetition
1	Pelvic tilt to pelvic curl	3 to 5
2	Chest lift	6 to 8
3	Swan prep	3 to 5
4	Child 'pose	Few minutes
5	Kneeling arm and leg reach	3 to 5
6	Cat –cow stretching	3 to 5
7	Swimming	3 to 5
8	Spine stretch	3 to 5 each sides

Table 2: Pre-test and test values for the group by using NPRS.

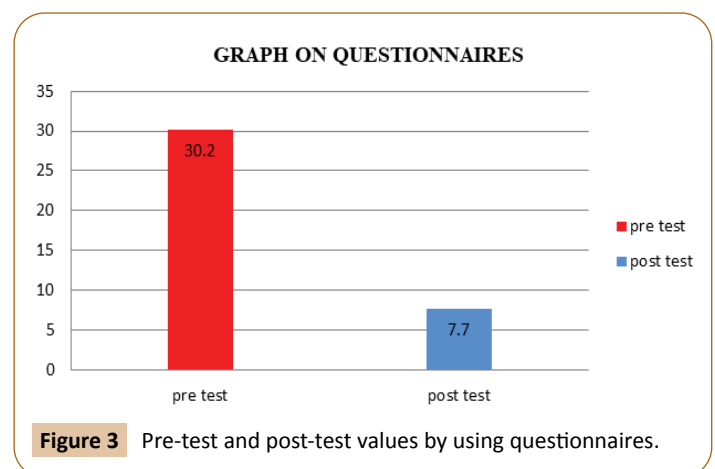
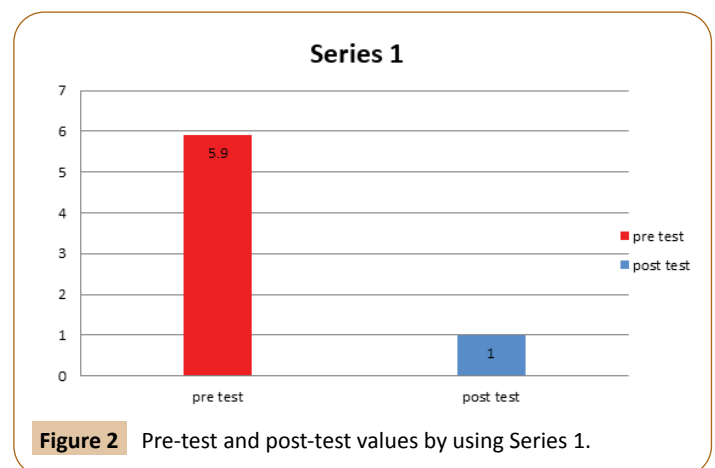
S. No.	Numeric Pain Rating Scale	
	Pre-test	Post-test
1	4	0
2	5	0
3	6	2
4	7	1
5	3	0
6	8	1
7	7	0
8	7	1
9	5	0
10	7	3

Table 3: Mean values, mean difference between pre-test v/s post-test values of NPRS test.

NPRS on Slump Test	Mean Value	Mean difference
Pre-test	5.9	4.9
Post-test	1	

Table 4: Pre-test and post-test values for the group by using oswestry questionnaires.

Case No	Pre-test	Post-test
1	30	9
2	29	7
3	33	8
4	25	3
5	30	9
6	31	8
7	32	7
8	31	10
9	30	9
10	31	7



The Pilates method, using functional exercises, improves the muscular strength and endurance. While practicing, the level of those exercises increase week after week and consequently determines one important postural control improvement.

Table 5: Mean values, mean difference between pre-test v/s post-test values of questionnaires.

Questionnaires	Mean value	Mean Difference
Pre-test	30.2	22.5
Post-test	7.7	

Principles of the Pilates method are similar compared with other generic lumbar exercises. Our schematic review explores the clinical effectiveness of Pilate's method in patient with LPB through a critical review of the literature. However, our study shows evidence that Pilate's method-based exercises are more effective than no treatment or minimal physical exercises interventions in the management of chronic nonspecific LBP. Our results, pointed out that the effects of the Pilates method are only proven for patients with chronic non-specific LBP.

Conclusion

Those suggest that Pilate's method is more effective than minimal physical exercises intervention in reducing pain and disability in the short-term period. The study concludes that the Pilates exercises are effective in improving the functional ability and immediate pain relief on chronic low back pain patients.

References

- 1 Wells C (2014) The effectiveness of Pilates exercise in people with chronic low back pain : A systematic review. PLoS One 9: e100402.
- 2 Eliks M (2019) Application of Pilates – based exercises in the treatment of chronic non-specific low back pain: A state of the art. Postgrad Med J 95: 41-45.
- 3 Patti A (2015) Effect of Pilates exercise program in people with chronic low back pain. Med 94: e383.
- 4 Silva D (2018) The effect of the Pilates method on the treatment of chronic low back pain : A clinical randomized controlled study. Br JP 1: 21-28.
- 5 Lin H (2016) Effect of Pilates exercises on trunk function and pain in patients with low back pain. J phys Ther Sci 28: 2961-2969.
- 6 Ali H (2017) A comparison of the effect of Pilates and McKenzie training on pain and general health in men with chronic low back pain: A randomized trial. Indian J Palliate Care 23: 36-40.
- 7 Lim E (2010) Effect of Pilates-based exercises on pain and disability in individuals with persistent non-specific low back pain: A systematic review with meta - analysis. J Orthop Sports Phys Ther 41: 70-80.
- 8 Posadzki P (2011) Pilates for low back pain : A Systematic review. Complement Ther Clin Pract 17: 85-89.