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THE EFFECTIVENESS OF PILATES EXERCISE IN PATIENT WITH CHRONIC LOW BACK PAIN

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ABSTRACT

Introduction: chronic low back pain (CLBP) is defined as pain for more than 12 weeks in the posterior lumbar region between the twelfth ribs and inferior gluteal folds as a consequence, CLBP places a large social and economic burden on society. Pilates exercises helps in reducing low back pain and focus on core strengthening, posture and coordination of breathing with movement and the method was developed by Joseph Pilates.

Aim: The main aim of the study is to find the effectiveness of Pilates exercises in the condition of chronic low back pain and improving functional ability.

Methodology: Pre and post experimental study conducted to find the effectiveness of Pilates in relieving pain and in improving functional ability. 30 subjects age between 25 to 35 of both sexes were selected through purposive sampling.

Data Collection: By using VAS and modified Oswestry questionnaire.

Results: The mean score of pre-test and post-test showed significant difference at t-value5.1%.

Conclusion: The present attempt has been concluded that status of Musculo skeletal discomfort and chronic low back pain and treatment on the relief status. Around 80% of the patient were faced Musculo skeletal discomfort and chronic low back pain in their life span a proper pain discomfort management under the proper supervision is possible with the help of Pilates exercise without use of any analgesics because the study shows a good impact of Pilates exercises to relief, control and prevents Musculoskeletal discomforts, chronic low back pain and functional ability. Hence, the finding of the study revealed that Pilates exercise was effective in relieving chronic low back pain, Musculo skeletal discomfort and in improving functional ability.

Keywords: Pilates exercises; Low back pain; Modified Oswestry Questionnaire; visual Analog scale.

I. INTRODUCTION:

Mechanical causes are responsible for the greatest percentage of low back pain[1]. William's exercise program was developed in 1937 for patient with chronic low back pain for men under 50 and women under 40 years who had exaggerated lordosis of lumbosacral part of the spine[2] Pilates exercises improves strength, endurance, flexibility of the muscles of the hip and shoulder girdle. They strengthen the core muscles, improves balance and posture, teach good alignment and provide gentle stretches for tiet back muscles. The intensity of pain may vary from person to person depending on pathophysiology[3]. The literature defined Pilate's method as a mind-body exercise that focusses on core stability, muscle control breathing, strength, flexibility and posture[4].

The Pilates exercises in this set are frequently recommended to help prevent and decrease chronic low back pain They strengthen core support for the back, teach good alignment, and provide gentle stretches for tight back muscles[5]. Deep breathing activates the supportive core muscle of trunk. Abdominal and back muscles are mutually supported. You can support your back by engaging your abs during these exercises. The present study has been able to represent the actual scenario of the effects of Pilates in people with chronic low back pain.

Aims and objectives

Aim

The aim of the study is to find the effectiveness of Pilates exercise in relieving pain, Musculo skeletal discomfort and in improving functional ability.

Objectives

1. Assessment of efficiency and impact of different exercises of Pilates to relief chronic low back pain, Musculo skeletal discomfort and functional ability by using visual analogue scale (VAS).
2. Types of Musculo skeletal problems prevalent in chronic low back pain.
3. To find the effectiveness of Pilates exercises for improving the functional activities by using modified Oswestry Questionnaires.

II. MATERIAL AND METHOD

Materials

- Exercise Ball
- Resistance bands
- Pilate's ring and Mat
- Sheet
- Water bottle
- Visual analogue scale
- Oswestry Questionnaire

Methods

Study design: pre-experimental and post experimental design

Study setting: The study is conducted in out-patient department of CSJM University Department of physiotherapy, Kanpur.

Sample's method: Purposive sampling method

Sample size: total number of 30 patients.

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

Inclusion criteria-

1. Back pain with slip disk in lumbar segment.
2. Age between ;25 to 35 years.
3. Both males and females.
4. Patient having chronic low back pain with more than 3 month of duration.
5. Low back pain with nonspecific in nature.
6. Without identifiable specific anatomical or neurophysiologic causative factor.

Exclusion criteria-

1. Low back pain with other reasons.
2. Pregnant women, cancer patients, Osteoporosis, Tumour, Infection.
3. Fracture, any structural deformities, Inflammatory disorder, Caudaequna Syndrome.
4. Patient with previous spinal surgery.
5. Spondylosis/Spondylolisthesis.

Outcome Measures-

Visual analogue scale (VAS-)

The visual analogue scale is a validated, subjective measure for Acute and chronic pain. Scores are recorded by making a handwritten mark on a 10cm line that represents a continuum between "no pain and worst pain"

Interpretations

No pain (0%)
1-3- Mild pain (25%)
4-7- Moderate pain (50%)
7-10- severe pain 75%-
10-maximum pain (100%)

0-10 VAS Scale

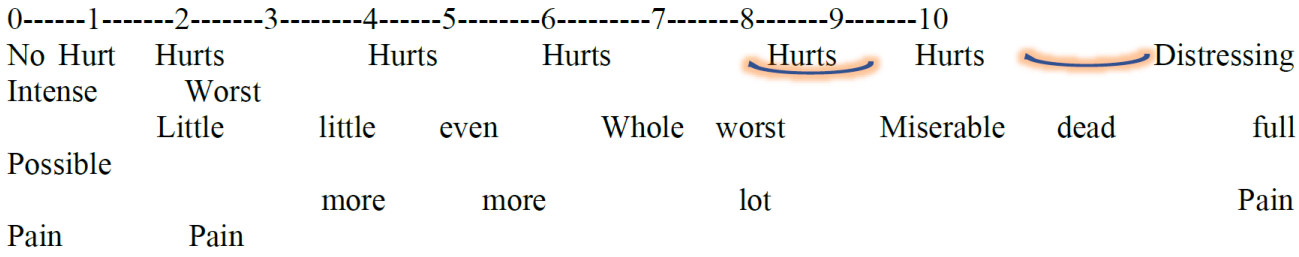


Figure1 0-10 Visual analogue Scale

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 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) [6,7]

Structured exercise protocol is presented in table 1

Data Analysis and interpretation is presented in table 2.
The table represents the mean value, mean difference between pre-test V/S
Post-test values of VAS test (table 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

Results and Discussions

Results show that the Pilates exercises is very beneficial in musculoskeletal discomforts, 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 value before and after the treatment Pilates exercises protocol

Table1: structured exercises protocol

S.No.	Exercises	Repetitions
1.	Rolling Back	3 to 5
2.	The spine stretches	4 to 5
3.	Rocker with open legs	4 to 6
4.	The spine twist	3 to 5
5.	The side kick kneeling	3 to 5
6.	The side bend	4 to 5
7.	The rocking	3 to 5
8.	Pelvic tilt to pelvic curl	3 to 5
9.	Chest lift	6 to 8
10.	Swan prep	3 to 5
11.	Child pose	Few minutes
12.	Cat-Cow stretching	3 to 5
13.	Kneeling arm & leg reach	3 to 5
14.	Swimming	3 to 5
15.	Spine stretch	3 to 5 each side

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

S.No.	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
11.	4	0
12.	8	2
13.	7	1
14.	3	0
15.	6	3
16.	5	1
17.	4	2
18.	8	0
19.	7	3
20.	5	0
21.	6	2
22.	8	3
23.	7	1
24.	8	0
25.	6	1
26.	4	2
27.	8	0
28.	6	3
29.	7	1
30.	4	0

Table 3: Mean values, Mean difference between pre-test V/S post-test values of VAS test

VAS Test	Mean Value	Mean Difference
Pre-test	6.2%	5.1%
Post-test	1.1%	

Table 4: Pre-test and test values for the group by using Oswestry Questionnaires

Case No.	Pre-test	Post-test
1.	29	9
2.	33	8
3.	25	10
4.	30	7
5.	31	10
6.	29	9
7.	32	8
8.	30	10
9.	31	7
10.	30	9
11.	31	8
12.	29	9
13.	32	10
14.	30	7
15.	29	8
16.	30	9
17.	29	10
18.	28	8
19.	25	7
20.	30	9
21.	29	10
22.	28	9
23.	33	7
24.	29	10
25.	32	8
26.	33	9
27.	29	8
28.	30	10
29.	31	9
30.	25	8

Table5: Mean values, mean difference between pre-test V/S post-test values of Questionnaires.

Questionnaires	Mean Value	Mean Difference
Pre-test	27.8%	19.2%
Post-test	8.6%	

Figure2 Pre-test and Post-test values by using Series 1.

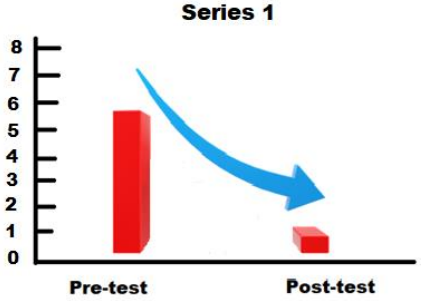
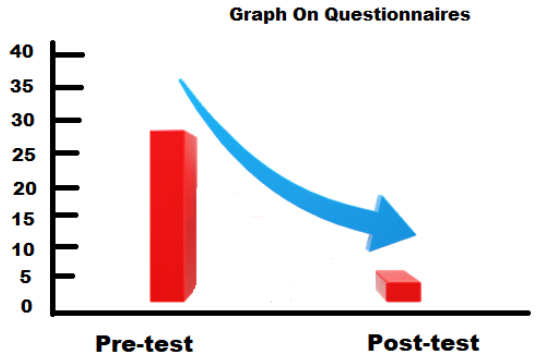


Figure 3 Pre-test and Post-test by using Questionnaires



III. CONCLUSION

The study suggest that Pilates method is more effective then minimal phisical exercises intervention in reducing pain and disability in the short term period. The study concludes that the Pilates exercises are effective in improving the musculo skeletal discomfort, functional ability and immediate pain relief on choronic low back pain patients.

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