

## EFFICACY OF MCKENZIE APPROACH ON LUMBAR DERANGEMENT SYNDROME

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### Abstract –

Low back pain is a common condition found in adults. About two third of adults complain of low back pain at some time. Derangement syndrome is sometimes defined as back pain that lasts for longer than 7–12 weeks. McKenzie is one of the effective methods in treating low back pain. The purpose of my study is to find the efficacy of McKenzie in derangement syndrome. The aim of this research is to find out the efficacy of McKenzie approach on derangement syndrome. Objective: To determine the efficacy of McKenzie approach in reducing pain by using NPRS scale in Derangement syndrome. To determine the efficacy of McKenzie approach in improving Lumbar spine mobility by using Modified Schober test in Derangement syndrome. Totally 30 participants were selected for the study and they were divided into 15 subjects and divided into 2 groups for experimental group and another 15 subjects for conventional group. The conventional group was given Conventional therapy, which is low back exercise and massage while the Experimental group was given McKenzie low back exercises, having the program frequency of 5days in a week for 4 weeks given. The Numerical pain rating scale and modified Schober test are used as outcome measures. The Statistical Analysis Shows That There Is An Improvement In Range Of Motion And Reduction In Pain In Individuals With Derangement Syndrome. It Is Concluded That There Is An Improvement In Range Of Motion And Reduction In Pain In Individuals With Derangement Syndrome.

**Key Words:** Low back pain, Derangement syndrome, McKenzie Method

### 1. INTRODUCTION

The majority of people will sometime during their lives have low back discomfort, which is a very common ailment. Although there is significant heterogeneity in low back pain epidemiological studies, which makes it difficult to compare and pool data. A study that looked at the prevalence of persistent low back pain found that it was 87% on average across five trials. As an illustration, 607 people were classified as having one of the mechanical syndromes in 83% of the instances, with derangement accounting for 78% of cases. 52% of 325 individuals with CLBP have the derangement syndrome, which is characterised by the distinctive pain characteristics of centralization [1]. Because there is a gap in diagnosis and treatment for 85 percent of chronic low back pain (CLBP) issues, the condition is categorised as "non-specific CLBP." Even when a specific radiological diagnosis has been made, it is not always possible to determine the underlying pain mechanism. Now widely accepted, CLBP disorders are complex in nature [2].

According to McKenzie's theory, mechanical deformation caused by derangement nearly always leads to persistent discomfort because of its definition and character. Parts of the internal and external components of the joints are continuously stressed whenever the surfaces of the adjacent joints are out of line with one another [3]. The McKenzie approach consists of three steps: assessment, therapy, and prevention. The lower body and lower back are affected by three groups of symptoms: derangement syndrome, dysfunction syndrome, and postural syndrome. Derangement classification is the most frequent clinically evident syndrome. When a person has derangement syndrome, the nucleus between two neighboring vertebrae changes from its normal location, interrupting the normal resting position of these surfaces [4]

The nucleus pulposus is now located differently, according to McKenzie's theory. He has suggested that the annulus fibrosus loses its ability to constrain the nucleus pulposus fluid, causing it to flow or be displaced initially. During the early phases of the nucleus pulposus flow or displacement, the annulus fibrosus may experience tension. As the annulus' successive layers gradually separate over time, the nucleus pulposus is gradually displaced. The annulus fibrosus eventually disintegrates, allowing disc material to protrude [5].

A popular classification for the diagnosis and therapy of musculoskeletal conditions such lower back, neck, and extremity pain is called mechanical diagnosis and therapy (MDT), also referred to as the McKenzie technique [6]. Massage therapy is proven effective for relieving pain in individuals with chronic low back pain. There are many different kinds of massage, such as Swedish massage, Thai massage, Shiatsu, reflexology, and myofascial release. The therapeutic use of massage is frequently seen as being risk-free and without serious adverse effects [7].

Exercise therapy attempts to improve muscular function and range of motion as well as muscle and joint strength. This should lessen discomfort and impairment, hasten recuperation, and enable a quicker return to regular activities. Exercise therapies are a variety of exercise styles, durations, and delivery modalities that are created or recommended by health professionals [8].

Common back pain operations include decompressive laminectomy with or without union for degenerative spondylolisthesis, discectomies for herniated discs and the accompanying radiculopathy, and various forms of fusions for non-radicular low back pain with degenerative changes [9]. According to reports, treatments for chronic low back pain include laser, spinal manipulation, exercises, massage, and multidisciplinary rehabilitation. Chronic low back pain is said to be unaffected by hydrotherapy, magnets, TENS, traction, or ultrasound [10].

## 2. Body of Paper

### METHODOLOGY:

Individuals who were screened for inclusion and exclusion criteria were asked for their willingness to participate in the study. Individuals from Saveetha medical college and hospital were selected. All the procedures and treatment protocols along with the risks were explained to the patients before participation. Totally (30) participants were selected for the study and they were divided into 15 subjects and divided into 2 groups for experimental group (Group A) and another

15 subjects for conventional group (Group B). The conventional group was given Conventional therapy, which is low back exercise and massage while the Experimental group was given McKenzie low back exercises, having the program frequency of 5daysinaweekfor4weeks given for 5 to 10 sets for each 2 to 3 hours. The Numerical pain rating scale (NPRS) and modified Schober test are used as outcome measures.

The experimental group was given McKenzie exercises:

1. Prone position propped on elbows (patient lies flat on their stomach and props themselves onto their elbows with the spine in extension).
2. Prone position propped on hands (patient lies flat on their stomach and props themselves onto their hands with elbows in full extension, with the spine in extension).
3. Standing lumbar extension (patient stands upright with feet shoulder-width apart, and puts hands on the lowerback while extending the spine).
4. Flexion in sitting (patient sitting in full kneeling position, and bends forward doing lumbar flexion)

The conventional group was given with following exercises:

1. Cat and camel exercise
2. Bird dog exercise.
3. Supine lying with knee towards chest.
4. Pelvic bridging.

### INCLUSIONCRITERIA:

- Both gender with low back pain having radiating pain unilaterally or bilaterally for more than 8 weeks.
- Age: 20 to 35.
- SLR positive.
- Slump test positive.

### EXCLUSIONCRITERIA:

- Spinal canal stenosis.
- Tumor.
- Spondylolysthesis.
- Auto immune disorder.
- Infection.
- Fracture.

## STATISTICAL ANALYSIS:

The collected data was tabulated and analyzed using NPRS scale and Modified Schober test for both experimental group and conventional group. Pre-test and Post-test values is evaluated. Unpaired t-test is used to analyze significant changes between two groups

## RESULT:

The statistical study revealed that McKenzie approach (Experimental therapy) is more effective than lowback exercise and massage therapy (Conventional therapy) in reducing pain and improving Range of Motion (ROM) in individuals with derangement syndrome

## DISCUSSION:

Low back pain is a common condition found in adults. About two third of adults complain of low back pain at some time. Derangement syndrome is sometimes defined as back pain that lasts for longer than 7–12 weeks. McKenzie method has been effective for treating derangement syndrome. The intervention consists of 5 days in a week for 4 weeks, given for 5 to 10 sets for each 2 to 3 hours. Also the collected data stated that the McKenzie technique is effective in reducing pain and increasing range of motion among individuals with Derangement syndrome. Therefore the McKenzie method is effective and got better results. So the study states that the McKenzie technique improves range of motion and reduces pain among individuals with Derangement syndrome.

Helen A Claire, Roger Adams in 2004 in Australian journal of physiotherapy they concluded that the McKenzie therapy offered advantages comparable to those of an exercise regimen. In comparison to other mainstream therapies, McKenzie therapy achieves short-term pain and disability reduction for patients with low back pain.

Brain M Busanich in 2006 in Journal of athletic training concluded that McKenzie therapy lessens discomfort in the short term. When compared to other standard treatments for low back pain, such as non-steroidal anti-inflammatory drugs, educational materials, back massages with back care tips, strength training under the guidance of a therapist, and spinal mobilization, McKenzie therapy reduces patients' short-term pain and disability.

Alessandra Narciso Garcia in 2013 concluded that For patients with chronic nonspecific low back pain, the McKenzie technique is a well-known active treatment strategy that includes both exercises and information. In

patients with persistent low back pain, the McKenzie technique was marginally more effective.

Suad Trebinjac in Bosnian journal of basic medical sciences in 2003 concluded that McKenzie exercises for low back pain are an effective treatment for enhancing spine flexibility and reducing pain with better outcomes. In individuals with low back pain, McKenzie exercises are an effective strategy for reducing and centralising the pain and enhancing spinal motions.

## LIMITATION AND RECOMMENDATIONS:

### LIMITATION:

- Monitoring patients at home is not possible.
- In this study only Lumbar Derangement Syndrome was taken, Cervical Derangement was not included

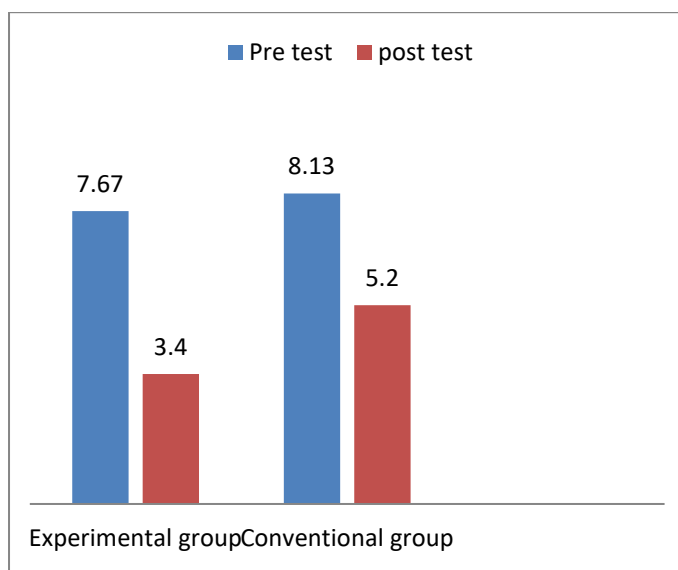
### RECOMMENDATION:

- Pain reducing modalities can be added with McKenzie method can be suggested for improved result.
- Dysfunction and Postural syndrome can be added to research.

**Table 1:**comparison of pre-test and post-test values of NPRS score for experimental group and conventional group

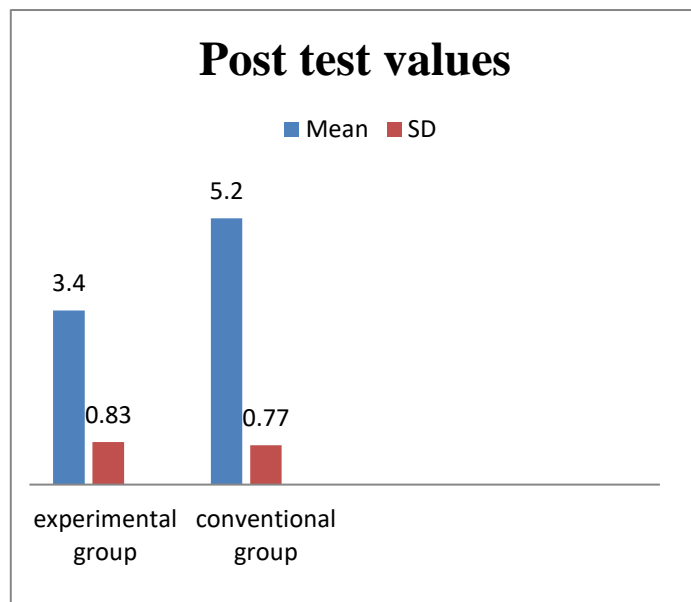
Group	TES T	MEA N	SD	T VALU E	P VALU E
Experimen tal group	Pre	7.67	1.3 5	15.025 4	<0.000 1
	Post	3.40	0.8 3		
Conventio nal group	Pre	8.13	1.1 9	13.399 2	<0.000 1
	Post	5.20	1.0 3		

**Graph1:** comparison of pre-test and post-test values of NPRS score for experimental group and control group



**Graph2:** Comparison of post-test values of NPRS score for

Experimental group and conventional group



**Table2:** Comparison of post-test values of NPRS score for experimental group and conventional group

Group	TES T	MEA N	SD	T VALU E	P VALU E
Experimen tal group	Post	3.40	0.83	6.1482	<0.0001
Conventio nal group	Post	5.20	0.77	6.1482	<0.0001

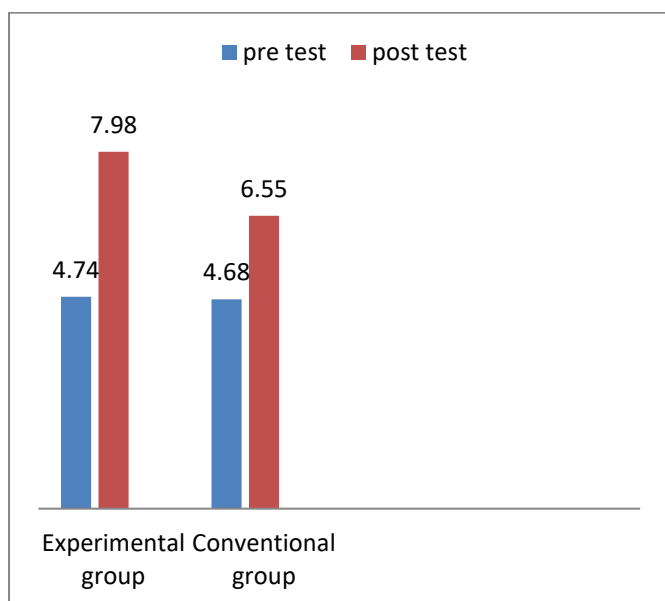
**Table3:** Comparison of pre-test and post-test values of Modified

Schober test for experimental and conventional group

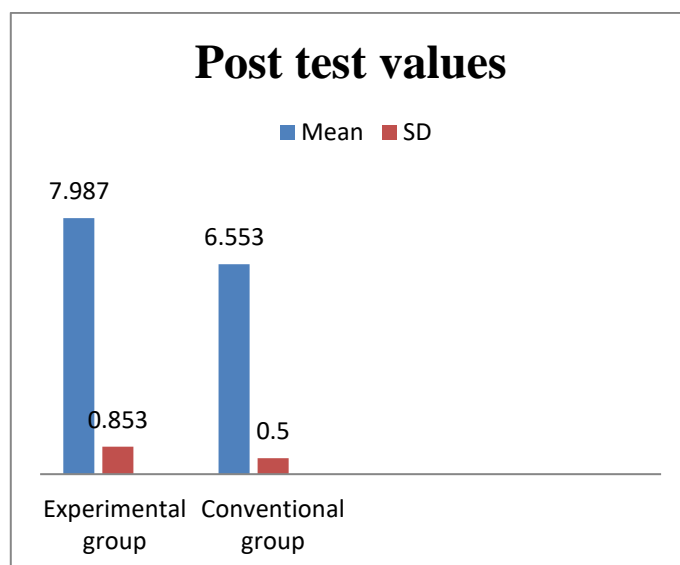
Group	TES T	MEA N	SD	T VALU E	P VALU E
Experime ntal group	Pre	4.747	0.340	13.4777	<0.0001
	Post	7.987	0.853		
Conventio nal group	Pre	4.687	0.439	12.3813	<0.0001
	Post	6.553	0.500		

**Graph3:**Comparison of pre test and post test values of Modified

Schobers test for experimental and conventional group



**Graph 4:** Comparison of post-test values of modified Schobers test for experimental and conventional group



**Table4:**Comparison of post-test values of modified Schobers test for experimental and conventional group

Group	TES T	MEAN	SD	T VALUE	P VALUE
Experimental group	Post	7.987	0.853	5.6128	<0.0001
Conventional group	Post	6.553	0.500		

### 3. CONCLUSIONS

According to this study, it has been concluded that McKenzie approach was more effective in reducing pain and improving Range of motion among individuals with derangement syndrome.

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