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Original Research Article

Effect of Core Stability Exercises in Treatment of Non Specific Low Back Pain in Young Adults

Gauri Shankar[1], Yama Joshi[2]

[1]Research Scholar, Singhania University, Pachheri Bari, Rajasthan, India.
[2]MPT, Physiotherapist, Gujarat, India.

Corresponding Author: Gauri Shankar

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ABSTRACT

Background: People suffer with low back pain due to reduced physical activity. Epidemiological studies indicate that about 60-80% of the general population suffer low back pain at some point in their lives.
Methodology: 52 young adults participated in this study based on convenient sampling method. Participants were allotted in two groups: group A (Experimental group- Core stability exercises) and group B (Control group- conventional exercises & back care advice). All the exercises were demonstrated to the participants for both the groups and all the treatment sessions were carried out alternatively thrice a week for 3 weeks under the observation. After completing treatment protocol of 3 weeks, participants were again given Functional Pain Scale and Modified Oswestry Low Back Pain Disability Questionnaire to check the difference in pain and disability due to low back pain following the exercise protocol.
Results: In experimental group post MOSW reduced from 20% to 8.63% after core stability exercises while in control group post MOSW reduced from 17.57% to 14.42%. Post functional pain scale (FPS) reduced in both group. After treatment session, MOSW reduced in experimental group (8.63%) than control group (14.42%) while FPS score was less in experimental group (15.61) in comparison to control group (23.39).
Conclusion: Core stability exercises are effective in reducing pain and improving functional disability among young adults with non specific low back pain.

Key words: Core, Core stability exercise, Non-specific low back pain.

INTRODUCTION

In today's advanced technology era people prefer to use technology induced luxuries instead of doing physical work. Relative reduced physical activity results in many discomforts like low back pain. Epidemiological studies indicate that about 60-80% of the general population suffer low back pain at some point in their lives. [1]

Non-specific low back pain is defined as low back pain not attributable to a recognisable, known specific pathology (e.g., infection, tumour, osteoporosis, fracture, structural deformity, inflammatory disorder, radicular syndrome, or cauda equina syndrome). [2]

Endurance of lumbar stabilizer is most important key for preventing lumbar pain. [3,4] Trunk muscle endurance training

has been recommended as means of increasing fatigue threshold and improving performance and reducing disability. [5] Improving endurance of trunk extensor therefore appears to be sound and promising approach for preventing low back pain and hence justification for conducting this study among individual without low back pain.

The core can be described as a muscular box with the abdominals in the front, paraspinal and gluteals in the back, the diaphragm as the roof, and the pelvic floor and hip girdle musculature as the bottom. [6] The core is also commonly referred to as the "power house" or the foundation of all limb movements. [7]

Objectives:

- To study the effect of core stability exercises in relieving pain and improving functional disability in college going students with non specific low back pain.
- To study the effect of conventional physiotherapy in relieving pain and improving functional disability in college going students with non specific low back pain.
- To compare the effect of core stability and conventional physiotherapy in treatment of non specific low back pain among college going students.

Hypothesis

Null Hypothesis: There will be no significant effect of core stability exercises in relieving pain and improving functional disability in treatment of non specific low back pain.

MATERIALS AND METHODS

Study Design: Experimental study

Source of Data: 52 healthy young adults.

Sampling Design: Convenient sampling

Inclusion Criteria

- Age group: 18 – 25 years
- Self reported healthy students having non-specific low back pain

Exclusion Criteria

- History of trauma
- Thoracic pain
- Past medical history of malignant tumour
- Prolonged use of corticosteroids
- Drug abuse, immunosuppression, HIV
- Any systemic disease
- Unexplained weight loss
- Any neurological diseases
- Structural deformity
- Fever

Outcome Measures:

- Functional Pain Scale
- Modified Oswestry Low Back Pain Disability Questionnaire

Procedure

After distribution of questionnaire the participants having back pain were assessed according to the assessment format. These participants were approached and explained about the study and those willing to participate were included in the study after taking a written informed consent from the participant.

Before initiating the treatment participants were given Functional Pain Scale to identify the level of pain and Modified Oswestry Low Back Pain Disability Questionnaire to identify disability due to low back pain.

Group A: Core stability exercises

Group B: Conventional exercises and back care advice

All the exercises were demonstrated to the participants for both the groups and all the treatment sessions were carried out alternatively thrice a week for 3 weeks under the observation.

After completing treatment protocol of 3 weeks participants were again given

Functional Pain Scale and Modified Oswestry Low Back Pain Disability Questionnaire to check the difference in pain and disability due to low back pain following the exercise protocol.

RESULTS

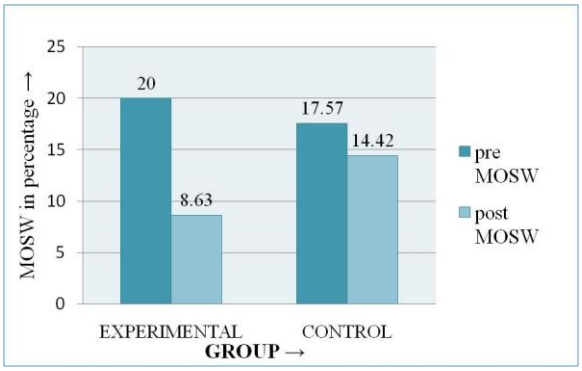

Table 1: Comparison of pre MOSW and post MOSW in Experimental and control Group done with Paired t test.

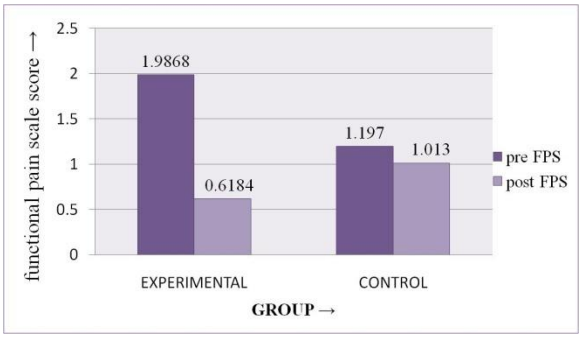

Table 2: Comparison of pre FPS and post FPS in Experimental and control Group done with Wilcoxon Signed Ranks Test.

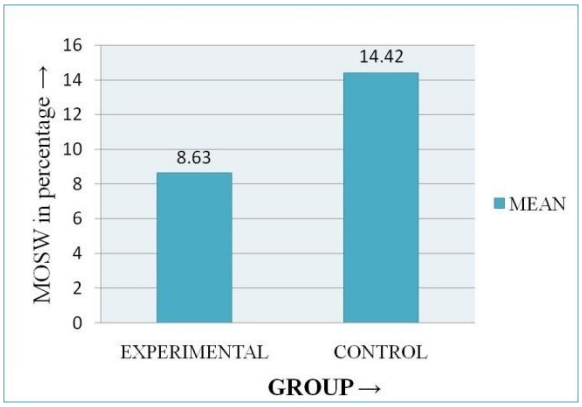

Table 3: Comparison of MOSW between experimental group and control group done with Independent t test.

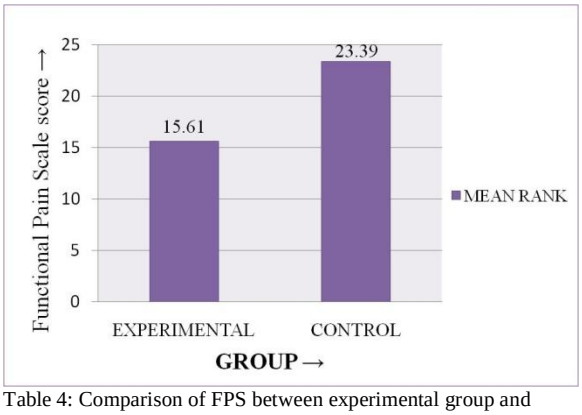

Table 4: Comparison of FPS between experimental group and control group done with Mann- Whitney U test.

DISCUSSION

The purpose of this study was to evaluate the effects of core stability exercises in young adults with non specific low back pain.

Our data support the hypothesis that core stability exercises reduces pain and disability, after 3 weeks of exercises.

The strength of the lumbar muscles is the key to the stability of the lumbar region. Therefore, lumbar stability based on the strength of the lumbar muscles is required to prevent lower back pain. [8]

Two studies on low back pain shown significant reduction in pain and disability after core stability exercise but no improvement in non treatment group. [9-13]

In our study there is significant improvement seen in reducing pain ($p \leq 0.05$) and functional disability ($p \leq 0.05$) post exercise from the pre exercise value in both experimental group and control group.

In our study extensor endurance was taken before starting the exercise protocol and after 3 week which shows significant improvement after exercise. So that core stability exercise is also beneficial in improving extensor endurance.

Some study [14] showed that both active trunk extension endurance exercise and core stabilization exercise are effective in improving endurance. Core stabilization exercises didn't show any significant over a

trunk extensor endurance training protocol in improving endurance of trunk extensors. Gauri Shankar et. al. [15] in another study on core stability training showed that core stabilization exercises with Swiss ball and without Swiss ball are equally effective in improving trunk endurance.

Other studies [16-18] on core stability training were done for more than 4 weeks while in our study the core stabilization-training began to show a difference on pain and functional disability at three weeks with the improvement in extensor endurance.

Here in this study both core stability exercise and conventional physiotherapy are equally effective in improving pain and disability. Core stability exercises do not appear to provide additional benefit to patients with non specific low back pain in comparison to conventional physiotherapy, as both the groups got similar improvement.

CONCLUSION

There was improvement in both groups, core stability exercise and even conventional physiotherapy. There is statistical significance in core stability exercise group which shows that core stability exercises are effective in reducing pain and improving functional disability among young adults with non specific low back pain.

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