THE EFFECT OF THORACIC STRENGTHENING EXERCISES IN MECHANICAL LOW BACK PAIN AMONG OFFICE WORKERS

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ABSTRACT

PURPOSE: This study was aimed to evaluate the effectiveness of thoracic strengthening exercises in mechanical low back pain among office workers. The objective of this study was to find the difference between the pre-test and post-test values of NPRS and Push and Pull Hand Held Dynamometer for low back pain.

METHODS: 30 subjects based on inclusion and exclusion criteria, study setting: the individual of SCPT. Materials: Interferential Therapy, Hand Held Dynamometer. Study design: Experimental study. Sampling method: Convenient sampling. Outcome measures: Numerical Pain Rating Scale (NPRS), Push and Pull Hand Held Dynamometer. The intervention was given for 2 weeks, 4 days/week. A baseline analysis NPRS and Push and Pull Hand Held Dynamometer was done before the intervention began. 2nd weeks of the intervention was given to the subjects following which a post-test was conducted and done to analyse the sustained effects of the intervention. A comparison between the mean values showed that there was a significant difference between post-test I and post-test II, hence, the results had sustained.

RESULTS: From the statistical analysis made with the quantitative data revealed a statistically significant difference between the groups.

CONCLUSION: Therefore, it was concluded that strengthening exercises combined with conventional therapy is effective in improving was found to be more effective than only conventional therapy in decreasing pain leading to faster recovery in subjects with low back pain.

Keywords: Low Back Pain, NPRS, Push and Pull Hand Held Dynamometer, Interferential Therapy, and Strengthening Exercise.

INTRODUCTION

Low returned pain is one of the most common ailments and about 70–80% of the populace journey it once or extra in modern society, and its incidence and social expenditures associated with it is increasing. There are quite several motives of back pain, and amongst them, herniation of intervertebral discs, and muscle weak points caused by muscle harm are fundamental reasons of lower again pain1–3. Low back pain is brought on through loss of segmental stabilization and balance ability, and limits vary of movement.4 Patients are distinctive as having persistent low lower back pain, when of ache account for the biggest wide variety of cases. After inspecting the action of each phase of the backbone of degenerated disc and postural instability patients, our learn about group suggested the most frequent motive of again ache is spinal instability 6. One Meta-analysis of studies on weight and lower again pain also showed a positive correlation between weight problems and again ache when weight increase, so does the danger of returned ache lines are the stretching of muscle groups and tendons normally lifting heavy objects, specifically except desirable form can easily purpose a person to strain their back. The older a person the extra likely they are to experience lower backache in accordance to American association of retired person, again ache is most likely to occur in 30 to 50-year-old The getting old procedure naturally wears on the physique along with thinning bones, reduction of fluid between joints in the spine16–20. All these things can motive again pain. Low again signs and symptoms vary from sharp and stabbing to stupid discomfort backbone most athletic accidents to the returned are stress of the muscular tissues the most frequent sports activities injuries take place after repetitive over the use of the spine both via twisting compression or flexion locations undue stress on the thoracic back, and triggering the development of back pain.9,15

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The excess weight pushes the pelvis forward and thereby strains the lower back. Low returned pain is a symptom no longer an ailment this may additionally be due to degenerative processes of the spine and postural instability. The extra weight pushes the thoracic ahead and thereby strains the decrease back. Low lower back pain is a symptom no longer a disease. In human motion in a multi-component model, the motion of the most flexible segment generates the biggest angle. Therefore, most spinal dysfunction is prompted by way of excessive flexibility of a particular section rather than negative flexibility. A study by Sharmila concluded that school teachers also get spinal pain. When conducting purposeful activities, the mobilization of the joints adjoining to an unstable segment is quite increased, and lowering the hypermobility via stabilization of the hypermobile section can promote recuperation. Thus, thoracic strengthening might also help to promote the stabilization of the lumbar region.

METHODS


Inclusion criteria: Low back pain lasting for more than 2 weeks, Difficulty in flexion and extension, Age group: 30 - 50 years, having a baseline NPRS, Subjects having ROM limitation during flexion and extension Gender: Male and female.

Exclusion criteria: Fractures, Intervertebral disc prolapsed, Musculoskeletal disorder with hypermobility, Subject who have taken physiotherapy treatment for the affect area, Patient on corticosteroid injection for affected area, Subject with metal implants, Cognitive impairment, Bladder or bowel disturbances, Inflammatory or specific disorders of the spine such as spinal surgery, Malignancy, Trauma.

Material Required: Interferential therapy, Push and Pull Hand Held Dynamometer.

Outcome Measure: Numerical Pain Rating Scale (NPRS), Push and Pull Hand Held Dynamometer.

PROCEDURE

30 individuals were selected according to inclusion and exclusion criteria. The consent was obtained from the participants. Participants were explained about the risk factors, safety, and procedure of the study. All the participants were selected according to a convenient sampling technique. Subjects are allocated into the, Control group: (n=15), Experimental group: (n=15). The control group received only Interferential Therapy (IFT). The experimental group received both Interferential Therapy (IFT) and Strengthening Exercise. Before initiation of the treatment session, NPRS and Push and Pull Hand Held Dynamometer are done as a pre-test outcome. The patient was asked to be seated for few minutes and they were explained about the procedure after which therapist demonstrated the exercises to the patient and the outcomes were measured with the same protocol of NPRS and Push and Pull Hand Held Dynamometer of the pre-test is repeated in post-test measures following the 2 weeks of the treatment procedure.

Treatment Session: Sessions: 1 session/day, Frequency: 4 days/week, Duration: 2 weeks.

RESULT

The collected data has been tabulated, analyzed using descriptive and inferential statistics. Hence, the parameters mean and standard deviation where it was used for paired t-test to analyze significant changes between pretest and posttest measurement. The statistical analysis made with the quantitative data revealed a statistically significant difference between Group A and Group B and also within the group.

The Post-test mean value of NPRS in Group A was 4.73(+1.28) and in group-B was 3.73(+1.44). This shows that NPRS scores in group-B were comparatively lesser than group A, P = 0.0541. The Post-test mean value of Hand-Held Dynamometer in Group A was 3.73(+0.80) and in group-B was 4.40(+0.74). This shows that Hand Held Dynamometer in Group B was comparatively more than Group A, P = 0.0243. Statistical Analysis of post-test for NPRS and Push and Pull Hand Held Dynamometer revealed that there was a high statistically significant difference seen between group A - Interferential Therapy and group B - Interferential Therapy and Strengthening Exercise. Thus, Strengthening Exercise along with Interferential Therapy has high statistical difference than only Interferential Therapy.

The collected data were tabulated and analyzed using descriptive and inferential statistics. To all parameters mean and standard deviation (SD) was used. A paired t-test was used to analyze the significant changes between pre-test and post-test measurements. An unpaired t-test was used to analyze significant changes between the two groups.

| Table 1: Comparison of Pre-test – Post test Values of Group A |
|-----------------|----------|-------------|-----|------|
| Group A         | Mean     | Standard Deviation | t value | P value |
| NPRS            |          |               |      |       |
| Pre-test        | 7.00     | 1.31          | 4.8002 | <0.0001 |
| Post-test       | 4.73     | 1.28          |       |       |
| HHD             |          |               |      |       |
| Pre-test        | 2.13     | 0.92          | 5.0827 | <0.0001 |
| Post-test       | 3.73     | 0.80          |       |       |
Graph 1: Comparison of Post test Values of Group A

Table 2: Comparison of Pre-test – Post test Values of Group B

<table>
<thead>
<tr>
<th>Group B</th>
<th>Parameter</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t value</th>
<th>P value</th>
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<td>1.22</td>
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<td>Post-test</td>
<td>3.73</td>
<td>1.44</td>
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<tr>
<td>HHD</td>
<td>Pre-test</td>
<td>2.20</td>
<td>0.94</td>
<td>7.1223</td>
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<tr>
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<td>Post-test</td>
<td>4.40</td>
<td>0.74</td>
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Graph 2: Comparison of Post test Values of Group B

Table 3: Comparison of post-test between group A and B

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Group A</th>
<th>Group B</th>
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<th>Significance</th>
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<td></td>
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<td>Standard deviation</td>
<td>Mean</td>
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<tr>
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<td>0.74</td>
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</table>

Graph: Comparison of post-test between group A and B
CONCLUSION

From this result, It has been concluded that Strengthening Exercise when given along with Interferential Therapy (IFT) of group-B was found more effective than Interferential Therapy (IFT) of group-A, in reducing pain and increase strength thereby leading to faster recovery in subject with low back pain.

DISCUSSION

This finds out about the investigated use of strengthening workout routines for the cure of patients suffering from lower again pain and its impact on pain relief, spinal moves, and changes in pain distribution from distal to the midline of the spine (centralization sign). Treatment consisted of one session of exercises day by day below the supervision of gurus and suggestion for few greater periods at home, relying on ache intensity and generic scientific prerequisites of the patient. As used to be recommended, therapy also focused on the correcting of physique posture. The pain was the most impairing symptom in this patient’s pattern and every patient experienced pain before treatment, the common rate on NPRS was earlier than cure (on 10 charges NPRS). After therapy, a widespread ache reduction occurred. Comparing pre-treatment and post-treatment results, all members in this study have pain remedy with a distinction in NPRS. Also confirmed vast enhancement at the cease of treatment comparing with pre-treatment measurements, with an average difference of 1 cm. Results of this learn about confirming that strengthening exercises are beneficial for patients with decrease again pain and they are producing a vast reduction in pain intensity and improvement in spinal motion. These outcomes are comparable with the effects of many other studies that inspect strengthening workout routines and their gain for the patients. More members in our find out about have gained in pain remedy than in Extension of the spine. Previous researches have determined that the centralization phenomenon can be a dependable predictor of excellent or notable treatment outcome two groups and we investigate the centralization phenomenon between groups. A huge range of our sufferers was in the acute stage than in the subacute stage. In previous studies there were many extra sufferers in the acute stage of ailment evaluating with our consequences had been we have the majority of subacute and persistent patients. Reason for this difference can be an organization of health gadget in our country and truth that patients had been referred for physiotherapy cure from essential care medical doctors or the specialist clinic, and all of them have been on some form of conservative cure earlier than coming to us (bed rest, medicaments, etc.) besides any recommendation of exercise treatment and postural corrections sufferers 61.5% have centralization signs and symptoms within two weeks of the period.

In group-A pre-intervention mean of NPRS was 7(+1.31) and Push and Pull Hand Held Dynamometer was 2.13(+0.92). After treating the subject with Strengthening Exercise, the mean value of NPRS decreased to 4.73(+1.28), and Push and Pull Hand Held Dynamometer was 3.73(+0.80), which shows statistically significant difference within the groups. In group B pre-intervention mean of NPRS was 7.33(+1.22) and Push and Pull Hand Held Dynamometer was 2.20(+0.94). After treating the subject with Strengthening Exercise along with Interferential Therapy, the mean value of NPRS decreased to 3.73(+1.44), and Push and Pull Hand Held Dynamometer was 4.40(+0.74), which shows statistically significant difference within the groups.

Based on statistical analysis, both groups A and B showed improvement in NPRS and Push and Pull Hand Held Dynamometer. However, subjects in group B who received Strengthening Exercise along with Interferential Therapy showed better improvement in NPRS and Push and Pull Hand Held Dynamometer than the subjects in group A, who received Interferential Therapy, when both the groups are compared at the end of 2 weeks.

LIMITATIONS & RECOMMENDATIONS

The sample size is less and the study duration was minimal, the study can be done in larger sample size & can be done in different age groups.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCE


