Research Paper E-ISSN NO : 2455-295X | VOLUME : 5 | ISSUE : 11 | NOVEMBER 2019

TO COMPARE THE EFFECTS OF PASSIVE STRETCHING AND POST ISOMETRIC STRETCHING OF HAMSTRING IN INDIVIDUALS WITH LOW BACK PAIN.

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ABSTRACT:

Purpose of Research: Low back pain is a most common problem nowadays. It can affect people of any age group. There are many causes of low back pain, one of the most common causes of low back pain due to muscular imbalance. Because of hamstring tightness there is decrease in lumbar lordosis so this causes low back pain. Objective of the study is to evaluate the effectiveness of passive stretching and post isometric stretching of hamstring in improving functional outcome and reducing pain & to compare the effects of passive stretching and post isometric stretching of hamstring in individuals with low back pain. Result: In the comparative analysis between two groups using ANOVA, it shows that the post isometric relaxation exercises and passive stretching exercises were effective in reducing pain and disability but post isometric relaxation exercises are more effective in reducing pain and functional outcome. Conclusion: The study conducted it has been proved that although both passive stretching and post isometric relaxation exercises were effective in treating low back pain due to hamstring tightness; it was found that post isometric relaxation exercises are more effective in reducing pain and improving functional outcome as proven clinically as well as statistically.

KEYWORDS:

LOW BACK PAIN, PASSIVE STRETCHING, POST ISOMETRIC EXERCISES.

INTRODUCTION

Low back pain is a most common problem nowadays. It can affect people of any age group. There are many causes of low back pain. One of the most prevalent findings in patients with nonspecific axial low back pain (LBP) is reduced hamstring extensibility. Extensibility is the ability of muscle tissue to lengthen or stretch beyond resting length[1].

Due to muscular imbalance alteration of the normal relationship among the alignment of the spine, the position of the pelvis, and the length of the muscles attaching to the spine and pelvis contributes to the development of LBP.3

A study conducted by Paul W M Marshall shows that due to hamstring tightness there is decrease in lumbar lordosis so this causes low back pain. Muscle energy technique (MET) is a manual technique developed by osteopaths and is now used in many different manual therapy professions. One such approach as muscle energy technique and this is also known as active muscular relaxation technique. It is claimed to be effective for a variety of purposes including lengthening a shortened muscles, as a lymphatic or venous pump to aid the drainage of fluid or blood and inch which targets the soft tissues primarily.[10]

Both post isometric resistance stretching and passive stretching is used for hamstring tightness. So an attempt is made to study the comparison to study the effect of post isometric resistance stretching and passive stretching in cases of low back pain.

A total of 60 subjects both male and female presenting with sign and symptoms of low back pain were Included in the study. Patients in the age group of 20-50 years symptomatically diagnosed as low back pain

RESULT: Data was tabulated on master chart. Data analysis was performed using SPSS software version 11.0

Following tests were used:

Mann Whitney U test has been used to find the significance of VAS Score between group 1 & group 2. Two tailed student t test has been used to find the significance of modified Oswestry Disability Scale between Group 1 & Group 2. compared to Group 1.

Friedman test for repeated measures has been used to find the significance of VAS & modified Oswestry Disability Scale within each group. Effect size has been computed using the Cohend & percentage of change has been computed to know the effect of each treatment.

Level of significance selected for study was $p<0.01$

TABLE: 8. 3 DURATION OF PAIN

DURATION OF PAIN	RANGE	MEAN ± SD
GROUP I	3-6	4.20 ± 0.92
GROUP II	3-6	4.10 ± 0.89
INFERENCE	MEAN DURATION OF PAIN IS SIMILAR BETWEEN TWO GROUPS WITH P=0.670.	

Table 8.3: Mann Whitney U test used to find the significance of VAS score between Group 1 & Group 2.

$p<0.01$ significant

$p>0.01$ non- significant

Mann Whitney U test was used to find the significance of VAS for duration of pain in Group 1 is ranging from 3-6 weeks with mean duration of pain 4.20±0.92 (SD) & duration of pain in group 2 is ranging from 3-6 weeks with

mean duration of pain between two groups is not statically significant with p=0.0673.

TABLE: 8.4 COMPARISON OF VAS SCORE BETWEEN TWO GROUPS

VAS SCORE	GROUP I (MEAN ± SD)	GROUP II (MEAN ± SD)	P VALUE
BASELINE	6.30±0.70	6.63±0.67	0.088
WEEK 1	4.62±1.00	4.87±1.14	0.326
WEEK 2	3.20±1.21	2.70±0.95	0.098
WEEK 3	1.97±1.07	1.20±0.96	0.007**
SIGNIFICANCE BY FRIEDMAN TEST	P<0.001	P<0.001	-
EFFECT SIZE	4.79	6.56	-
% CHANGE	68.73%	81.90%	-

In Table 8.4 Friedman Test was used to represents comparison of VAS score between two groups.

When p value was calculated between Group 1 & Group 2, patient belonging to Group1 had statically significant reduction in pain (p=0.025) at the end of first week with mean score of pain 5.43±0.9 (SD) as compared to Group 2 patient with mean score of pain 6.03±0.96 (SD), but as the treatment progressed by the end of 3rd week, group 2 patients had significant reduction in pain (p=0.007)

The calculated effect size was greater in Group 2 patients (6.56) compared to Group 1(4.79) & so as the percentage change 81.90%among Group 2 patients compared to 68.73% of Group 1 subjects.

TABLE: 8.5 COMPARISON OF MODIFIED OSWESTRY DISABILITY SCALE SCORE BETWEEN TWO GROUPS

MODIFIED OSWESTRY DISABILITY SCALE	GROUP I (MEAN ± SD)	GROUP II (MEAN ± SD)	STUDENT T
BASELINE	23.27±3.44	20.37±3.24	3.358**
WEEK 1	19.33±3.31	16.50±3.28	4.037**
WEEK 2	13.17±2.77	9.50±2.89	5.023**
WEEK 3	6.80±2.12	3.83±2.31	5.184**
SIGNIFICANCE BY REPEATED MEASURES ANOVA	P<0.001	P<0.001	-
EFFECT SIZE	5.76	5.88	-
% CHANGE	70.77	81.19	-

Table 8.5: Two tailed student t test used to find the significance of modified Oswestry Disability Scale Score between Group 1 & Group 2.

Comparison of modified Oswestry Disability Scale Score between two groups & significance was calculated by repeated ANOVA measures.

Probability of chance in both the group was found to be p<0.001. But the effect size & percentage change was greater among Group 2 sample compared to Group 1. The comparison between two groups performed using student t test is found to be statically significant at the end of each week.

Patient belonging to Group 2 had better functional outcome compared to their Group 1.

When the effect, size, & percentage change of the modified Oswestry Disability Scale Score between the two groups were compared against the study period, Group 2 sample showed statically significant improvement in performing functional activities compared to Group 1 at the end of every week which was clinically significant.

On the basis of description of the table given above showing results of Mann Whitney u test has been used to find the significance of VAS Score between Group 1 & Group 2.

Two tailed student t test has been used to find the significance of modified Oswestry Disability scale score between Group 1 & Group 2.

Friedman test for repeated measures has been used to find the significance of VAS & modified Oswestry Disability Scale Score within each group.

The result of study showed that both groups showed significant improvement in VAS Score & Oswestry Scale Score.

However when compared both Groups; Group 2 showed significant difference in VAS Score & modified Oswestry Scale Score as compared to Group1

DISCUSSION: The statistical data implies group II patients had better improvement in terms of reduction of pain and functional outcome compared to group I patients. Study has shown statistically significant improvement among the patients of both groups. This indicates stretching exercises are effective in reducing pain and improving functional outcome. This is in agreement with the study performed by JAMES R. that stretching exercises are effective in patients with low back pain irrespective of the type of exercise compared.

In the present study the post isometric relaxation exercises and passive stretching exercises were effective in reducing pain and disability but post isometric relaxation exercises are more effective in reducing pain and functional outcome.

CONCLUSION: From the study conducted it has been proved that although both passive stretching and post isometric relaxation exercises were effective in treating low back pain due to hamstring tightness ; it was found that post isometric relaxation exercises are more effective in reducing pain and improving functional outcome as proven clinically as well as statistically.

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