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Comparison between Conventional Therapy and Dry Needling Therapy in the Treatment of Low Back Ache among Power Lifters

Anjum Fatima Sheikh[1], N.P. Singh[2]

[1]Lecturer, Jammu College of Physiotherapy, J&K
[2]Professor, Jammu College of Physiotherapy, J&K

Corresponding Author: Anjum Fatima Sheikh

ABSTRACT

Background: Low back ache is a frequently faced problem that affects majority of the population. Pain and injuries are considered a frequent problem amongst elite athletes and recreational lifters performing the squat, bench press and dead lift. The dead lift exercise has high load on the spine during the lifts. It has been shown that the compression forces average >17 000 N in elite power lifters.
Method: Twenty male power lifters with age group 20 to 30 years with complaint of low back ache were included in study. The study design was a randomized clinical trial with a pre- and post-test groups design.
Results: The descriptive statistics showed that there was a significant difference in pre (t-value 8.90778 & p-value <.00001) and post-intervention (t-value 25.66667 & p-value <.00001) measures of pain in each group. However, when values of post intervention were compared using Wilcoxon signed rank test, group B showed significant difference in outcome for pain with z value -2.8031 & p-value <.00512. Thus, by analyzing this data we can presume that the treatment given to group B i.e. dry needling therapy followed with active stretching was more successful than conventional therapy.
Conclusion: The conventional therapy may be useful in the reduction of pain severity in low back ache among power lifters but dry needling therapy followed with active stretching showed more significant reduction in pain severity.
Keywords: low back ache, power lifters, dry needling therapy, physiotherapy, conventional therapy.

INTRODUCTION

Low back ache is a frequently faced problem that affects majority of the population. It may originate from an injury, disease or stresses on different structures of the body. The symptoms of low back ache may vary greatly and can be produced as bone pain, muscle pain or nerve pain. Pain and injuries are considered a frequent problem amongst elite athletes and recreational lifters performing the squat, bench press and dead lift. All these lifts engage multiple joints and expose the athlete's body to high physical demand often several times a week. These athletes are exposed to the extremely heavy loads which require large range of motion during the exercises. Insufficient resting times between training sessions and/or faulty lifting technique are the major cause of pain and injuries among athletes. With time the participation rates in power lifting are generally growing among both men and women of all ages, levels of training or competition. In competition, maximal loads corresponding to up to four times bodyweight are lifted for single repetitions.

In power lifting and weightlifting deep squats are incorporated in daily training and during competition. The dead lift exercise has high load on the spine during the lifts. It has been shown that the

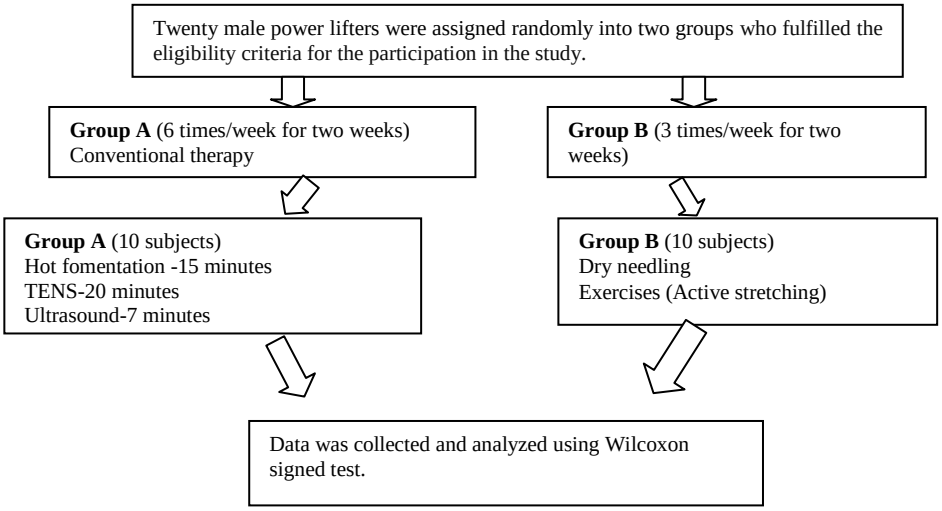
compression forces average >17 000 N in elite power lifters, and the distribution of forces have a large variation depending on the lifting technique. It has been found that the low back, knee and shoulder areas are the most frequently injured joints. It was also reported that of all the injuries, 60% were acute and the rest were of chronic character. Only 20% of injuries were classified as severe (the lifter had to rest more than a week). By the definition of sports injury it is restricted to the consequences of sudden, damaging events such as strains and lacerations. However, signs and symptoms of overuse syndromes (e.g., pain and functional limitations) appear gradually and the athlete often continues training. With this point of view this paper will find the efficacy of treatment protocol for low back ache in power lifters.

There is scanned data available regarding the efficacy of dry needling and its clinical outcomes among power lifters. The purpose of the study was to compare the effectiveness of conventional therapy and dry needling therapy in the treatment of low back ache in power lifters.

METHODOLOGY

Twenty power lifters with complaint of low back ache were included in study and was conducted Shri Sain charitable hospital, Jammu. Prior to the commencement of the procedure, a written consent was taken from the participants. The patients were assigned randomly into two groups; group A (conventional therapy) and group B (dry needling therapy). Each group includes 10 subjects and treatment was performed three times for two weeks. Numerical pain rating scale was used for the assessment of pain in both the groups. Pain score was taken pre treatment i.e.1st day and post treatment i.e. end of 2nd week by using NPRS and comparison of data between both groups of the pre and post values was done. The inclusive criteria for this study include male power lifters with chronic low back ache, power lifters with age group 20 to 30 years. Exclusive criteria include prolapsed intervertebral disc, lumbar canal stenosis, previous surgery, other neuromuscular disease like spondylolisthesis. The study design was a randomized clinical trial with a pre- and post-test groups design. This study was reviewed and approved by the ethical committee of Jammu College of physiotherapy, Nardani Kot Bhalwal, Jammu.

Procedure:-



Statistical analysis:-

Statistical package SPSS version 20, Microsoft Excel 2007 was used to analyze the data where mean and standard deviation were derived. Independent t test was used to determine the difference in pre and post

intervention in each group and Wilcoxon signed rank test was used to assess comparison between both groups. The criterion of statistical significance was set at ($p<0.05$).

RESULTS

Table 1: Demographic characteristics of patients in group A &B (conventional therapy & dry needling therapy):-

Characteristics	Group A	Group B
Age	24.20±3.048	24.90±3.213

Table:-1 Shows demographic details of the subjects with mean and SD 24.20±3.048 and 24.90±3.213 respectively.

Table 2:- Descriptive statistics of group A (conventional therapy).

	Pre treatment	Post treatment	t-value	p-value
NPRS	8.60±.966	5.50±.527	8.90778	<.00001

Table 2:- Shows descriptive statistics of group A with t-value 8.90778 and p-value <.00001respectively.

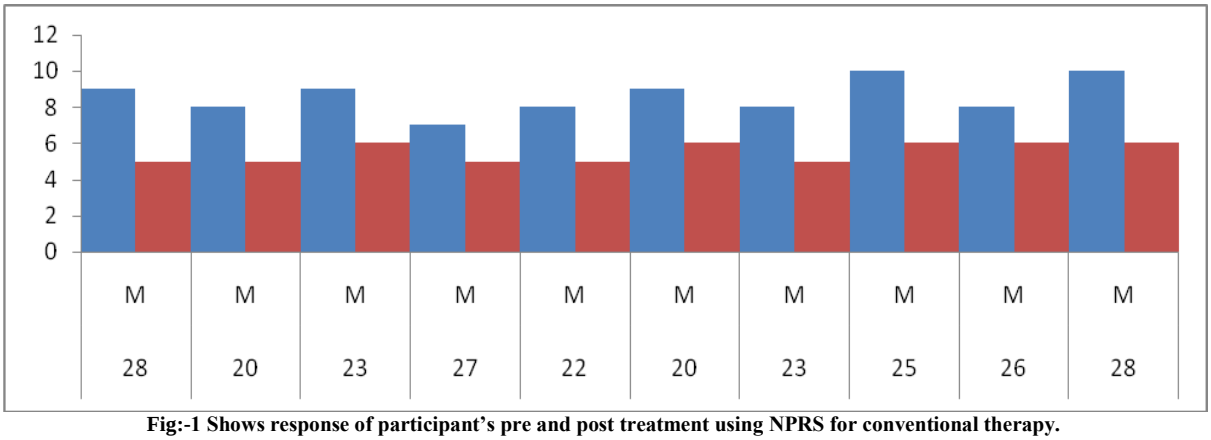


Fig:-1 Shows response of participant's pre and post treatment using NPRS for conventional therapy.

Table 3:- Descriptive statistics of group B (dry needling therapy).

	Pre treatment	Post treatment	t-value	p-value
NPRS	9.50±.707	1.80±.632	25.66667	<.00001

Table 3:- Shows descriptive statistics of group A with t-value 25.66667 and p-value <.00001respectively.

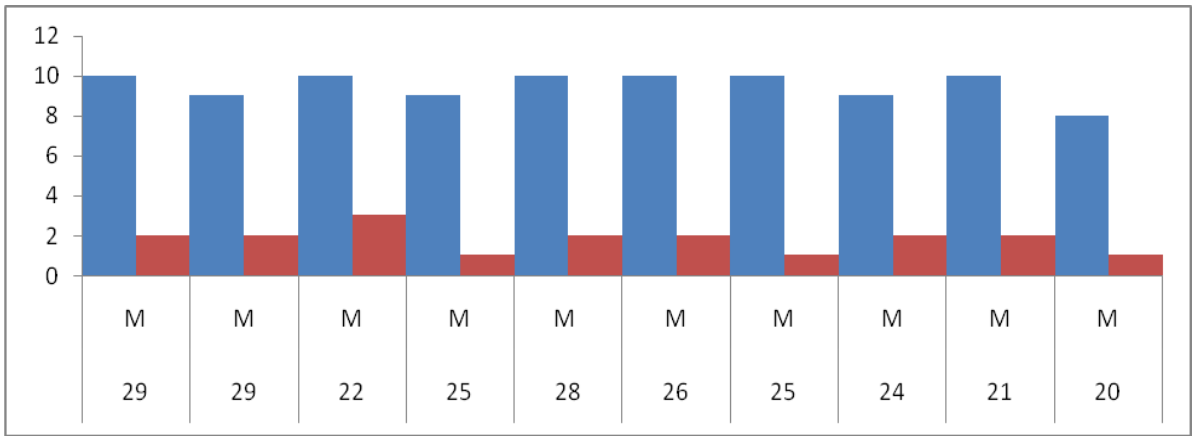


Fig2:- Shows response of participant's pre and post treatment using NPRS for Dry needling therapy.

Table4:- Comparison between both groups (conventional therapy & dry needling therapy)

	p-value	z-value	Mean (W)	Standard deviation (W)
Group A &B(post intervention)	<.00512	-2.8031	27.5	9.81

Table 4:- Shows the comparison between two groups with z-value -2.8031and p-value <.00512 respectively.

The descriptive statistics showed that there was a significant difference in pre- and post-intervention measures of pain in each group (Table 2&3). However, when

values of post intervention were compared using Wilcoxon signed rank test, group B showed significant difference in outcome for pain with z value -2.8031 & p-value <.00512. Thus, by analyzing this data we can presume that the treatment given to group B i.e. dry needling therapy followed with active stretching was more successful than conventional therapy.

DISCUSSION

The sample population consisted of 20 male subjects who had persistent low back ache and were divided into two groups. Group A received conventional therapy i.e. hot fomentation for 10 minutes, TENS for 20 minutes, ultrasound for 7 minutes. When the pain scale (NPRS) was reassessed the subjects reported slight decrease in pain severity over the course of the treatment with mean and standard deviation 5.50±.527 respectively (fig1& table2). A study done by Melzack .R et al, reported that TENS is an effective treatment for the treatment of low back ache. Another study reported by Jamison. RN et al, stated that high-frequency TENS may have a moderate effect in decreasing pain severity and improving quality of life among persons with primary low back pain.

By our study a study done by Safoora Ebadi et al, on chronic low back pain patients reported that there is a very less data that therapeutic ultrasound has a small effect on decreasing severity of pain in the short term, but this benefit is unlikely to be clinically important. A study reported by Durmus. D et al, reported that ultrasound therapy is an effective modality in relieving pain symptoms and some other symptoms such as functional performance, as well as depression in patients with chronic low back pain.

On the other hand, group B who received dry needling therapy reported a more significant reduction in pain severity in few days with mean and standard deviation 1.80±.632 respectively (fig2 & table 3). Our study was in accordance with the review study done by Lin.L et al, which reported that low to moderate quality data showed that compared with other treatments, dry needling resulted in significant decrease in pain intensity and functional disability at post intervention. A study done by Edward. J et al, on patients with musculoskeletal pain reported that superficial dry needling with active stretching is more effective than stretching alone in treating active trigger points, and is more effective than other treatment in reducing pain. Stretching alone without prior deactivation may cause trigger point sensitivity. Another study done by Tuzun E.H et al, reported that dry-needling may be an effective treatment than classical physiotherapy program for reducing pain, trigger points, sensitivity in patients with chronic low-back pain.

Thus, the result of this study revealed that both conventional therapy and dry needling therapy were significantly effective in reducing pain severity (Table 2&3). However, when both the studies were compared dry needling therapy was found to be more effective than conventional therapy (Table 4).

CONCLUSION

The conventional therapy may be useful therapeutic modalities in the reduction of pain severity, although the result revealed that conventional therapy has a statistically significant reduction in pain but dry needling therapy showed more significant reduction in pain. Thus, dry needling therapy should be combined with other modalities to gain better results in the treatment of low back ache among power lifters.

Limitation of study:-

A large sample size and other musculoskeletal problems among athletes with more treatment outcome can be incorporated in future research.

Conflict of interest: - None

Source of support: - None

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