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Comparision of Alexander Technique versus Jacobson Relaxation Technique in Improving the Functional Activity of School Teachers with Mechanical Cervical Pain

Srinivasan M.[1], Srinivas Mondam[2], Jalaja Prakash[3]
[1]SRM University, Tamil Nadu, INDIA
[2]Universiti Pendidikan Sultan Idris, Tanjong Malim, MALAYSIA
[3]Sai Sudha Multispecialty Hospital, Tirupati, INDIA

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Abstract

One of the most common musculoskeletal problems in now a days is mechanical neck pain. Survey shows that neck pain is common, about men and women are suffering with this problem. Causes includes minor injuries or sprains to muscle or ligament in neck. Neck pain is more common in people who spend much of their working day at a desk with a bent forward posture. Often the exact cause or origin of pain is not known. Prevalence is highest in middle age with women being affected more than men. The effectiveness of Alexander technique in minimizing the mechanical pain has been proved by many research workers. Very few studies exist comparing the effectiveness of relaxation method in minimizing the mechanical cervical pain. The aim of study is to compare the effectiveness of Alexander technique and Jacobson relaxation technique in inducing relaxation and improving the functional activity of individual with mechanical cervical pain. Simple Random Sampling Experimental design Sample size 40 Subjects Group A = 20 patients Group B = 20 Patients Setting done. Samples were selected into experimental group and control group with 40 subjects with mechanical cervical pain are taken as sample for this study and divided into two groups. The subjects with mechanical cervical pain are confirmed through the special test for cervical region. Radiological investigations should not reveal any degenerative changes. The tests should be negative like cervical compression test, cervical distraction test and Adson test. After the treatment section to both groups' data was analyzed. Comparison of pre and post Numeric Rating Scale (NRS) using Alexander technique shows pre NRS 7.4 and post NRS reduced to 2.25, gives t-value 17.1 thus giving significant result with p<0.001.Comparison of pre and post NRS using Jacobson relaxation technique shows pre NRS 7.6 and post NRS reduced to 4, given t-value 19.6, thus giving a significant result with p<0.001.Using Alexander technique and Jacobson relaxation technique in school teachers with mechanical cervical pain showed that both the interventions were effective in reducing pain intensity and improves the functional activity. This study predicts that group-A showed better improvement when compared to group-B.

Keywords: Alexander technique, Jacobson relaxation technique, mechanical cervical pain, Neck Disability Index Scale, Numeric Rating Scale.

Introduction

Mechanical cervical pain which is referred as simple or non specific neck pain is one among the most common problems. More than half of people develop mechanical cervical pain at some time in their life. The causes of mechanical cervical pain include minor injuries, bad posture, and sprain to muscles or ligaments in the neck. Mechanical cervical pain is common in people who spend most of their time working at a desk with a bent forward posture. Mechanical cervical pain usually does not cause weakness or numbness in the upper extremity because the problem is not due to compression of the spinal nerves. Journal of Spine 2006 survey shows that prevalence of mechanical cervical pain is higher in middle age working population[1]. Another survey shows that the incidence of mechanical cervical pain is one out of four women and one out of five men. Few long term interventions such as strengthening and stabilizing exercise have been proved to substantially help the patients with mechanical cervical pain. However there is lack of evidence related to the long term benefits for mechanical cervical pain and exercise prescription. Relaxation is one of the methods to reduce musculoskeletal pain; very few studies prove the effectiveness of relaxation method in minimizing the mechanical cervical pain[2]. Jacobson relaxation technique is also called as progressive relaxation therapy. This technique not only cures taut muscles and cramps, but also reduces the intensity of pain and relieves stress and anxiety[3]. Alexander technique offers an individualized approach to develop skills that help people recognize, understand, and avoid poor habits affecting postural tone and neuromuscular coordination, support the practice and theory of the technique in conjunction with preliminary findings of changes in load and position. It could potentially reduce mechanical cervical pain limiting muscle spasm, strengthening postural muscles, improving coordination and flexibility and decompressing the spine[4].

AIM: The aim of the study is to compare the effectiveness of Alexander technique and Jacobson relaxation technique in inducing relaxation and improving the functional activity of individual with mechanical cervical pain.

Material and Methods

Study Design: comparative study, study type: Experimental Study, Sampling Method: Convenient Sampling, Study setting: Little Flower Higher Secondary School, Kumbakonam, Selection Criteria: Forty subjects were taken for the study and divided into two groups namely Group A and Group B, each group consisting of 20 subjects. Group A was given Alexander technique and Group B was given Jacobson relaxation technique.

Inclusion Criteria: i. History of mechanical cervical pain less than 3 months. ii. Numerical rating scale > 5, iii. Neck Disability Index Scale > 25, iv. Age group: Above 30 to 50 yrs, v. Both genders were considered. vi. The following tests should be negative: (a) Cervical compression test, (b) Cervical distraction test, (c) Adson test

Exclusion Criteria: i. History of any neurological disease. ii. History of any infection, trauma, TB, iii. Postural abnormalities. iv. History of Psychosis. v. Uncooperative patients. vi. History of spinal deformities. vii. History of nerve compression and injuries. viii. History of degenerative changes.

Materials used for the Study: i. Assessment chart, ii. Treatment mat, iii. Pillow, iv. Chair, v. Paper, vi. Pencil, vii. Numeric Rating Scale, viii. Neck Disability Scale.

Assessment tools: i. Numeric Rating Scale, ii. Neck Disability Index Scale.

Procedure: An initial survey was performed on the school teachers using an assessment form. The subjects who satisfied the inclusion criteria were selected for the study after getting an informed consent .The 40 subjects instructed were randomly assigned into two groups namely Group A and Group B. Each group consists of 20 subjects. The subjects in Group A will undergo for Alexander technique. The subjects in Group B will undergo for Jacobson relaxation technique. A pre test score was taken before the commencement of exercise. The functional activity was measured using the neck disability index scale .The intensity of pain was quantified by numeric rating scale. This technique was given for 5 days in a week for a total period of 4 weeks. The post test score of NRS and NDIS were measured at end of the fourth week. The obtained pre -test and post- test score were compared and analyzed statistically.

Alexander Technique (Group A): The subjects were made to assemble in a quiet room to avoid disturbances. The subject was advised to wear loose fitting clothes. There are 6 methods in Alexander relaxation technique. Each method has an exercising time of 15 seconds and relaxing time of 30 seconds with 5-6 repetitions. Each treatment session lasts for 20 minutes. The duration of the interventions was 4 weeks with a frequency of 5 days per week.

The six methods of alexander technique: i. Neck Free: The head was held in such a way that no under strain was put on the neck muscles. Nodding of head was done till subject feels free. ii. Head Forward and Up: The subject was asked to stand and position their head in such a way, as to eyes looking down, with chin in line with the toes. The subject was positioned in standing, and encouraged to flex the neck sideways in a relaxed manner. iii. Back Lengthen: The subject was asked to maintain the spine erect, such that head feels light and balanced on top. iv. Keeping Length: The subjects was asked to place their feet slightly apart, in standing, arm hanging loosely by the side, asking the subject to feel light and gently lower down, sit in chair and raise up to standing, maintaining the spine erect throughout. v. Back Widening: The subject was asked to take a deep breath, feeling the expansion of their thorax, by placing their hands on either side of their lateral chest wall. vi. Shoulder Release and Widen: The subject was then encouraged to relax their shoulder girdle, by gently doing shoulder bracing exercise, without elevating their shoulder.

Jacobson Relaxation Technique (Group B) the subjects were made to assemble in a quiet room to avoid disturbances. The subject was advised to wear loose fitting clothes. Instruct the subject to breath in deeply in a relaxed manner. Ask the subject to lie down comfortably on a firm surface with a pillow support under the head. The relaxation technique was given for 20 minutes daily for 5 days a week, for duration of 4 weeks. Each treatment session has 15 seconds holding time and 30 seconds relaxing time with 5-6 repetitions for each technique.

The Jacobson Relaxation Techniques Are: i. The subject should press head back in to pillow. ii. In the same position the subject has to raise the head off the pillow. Then relax. iii. Then laterally flex the head to left side. iv. Followed by lateral flexion to right side. v. Finally the subject was allowed to relax for 5 minutes.

Results and Discussion

The collected data were recorded and tabulated. The data was analyzed using statistical package for social science (SPSS) to present the finding of the study. Efficiency of Alexander techniques and Jacobson relaxation techniques in mechanical cervical pain patient was identified through numeric rating scale and neck disability index.

Table- 1
Statistical tabulation to analyses the comparison of pre and post NRS using Alexander technique (Group A)

S. No	Details	Mean	S.D	t-value	Significance
1.	Pre NRS	7.4	0.821	17.1	P<0.001 s.s
2.	Post NRS	2.25	1.07		

NRS = Numeric Rating Scale, S.D = Standard Deviation, S.S = Statistically Significant. The table infers that pre and post NRS total is statistically significant with p<0.001

Table- 2
Statistical tabulation to analyses the comparison of pre and post NDIS using Alexander technique (Group A)

S. No	Details	Mean	S.D	t-value	Significance
1.	Pre NDIS	28.7	3.81	23.1	P<0.001 s.s
2.	Post NDIS	5.55	2.35		

NDIS = Neck Disability Index Scale, S.D = Standard Deviation, S.S = Statistically Significant. The table infers that pre and post NDIS total is statistically significant with P<0.001

Table- 3
Statistical tabulation to analyses the comparison of pre and post NRS using Jacobson relaxation technique (Group B)

S. No	Details	Mean	S.D	t-value	Significance
1.	Pre NRS	7.6	0.598	19.6	P<0.001 s.s
2.	Post NRS	4	0.562		

NRS = Numeric Rating Scale, S.D = Standard Deviation, S.S = Statistically Significant. The table infers that pre and post NRS total is statistically significant with p<0.001

Table -4
Statistical tabulation to analyses the comparison of pre and post NDIS using Jacobson relaxation technique (Group B)

S. No	Details	Mean	S.D	t-value	Significance
1.	Pre NDIS	32.2	3.79	18.2	P<0.001 s.s
2.	Post NDIS	10.8	3.65		

NDIS = Neck Disability Index Scale, S.D = Standard Deviation, S.S = Statistically Significant. The table infers that pre and post NDIS total is statistically significant with P<0.001

Table- 5
Statistical Tabulation to analyze the effectiveness of Alexander technique vs. Jacobson relaxation technique in reduction of pain and functional disability

S.No	Details	Alexander Technique		Jacobson Relaxation Technique		t-Value	Significance
		Mean	S.D	Mean	S.D		
1.	NRS	2.25	1.07	4.00	0.562	6.4754	P<0.001 s.s
2.	NDIS	5.55	2.35	10.8	3.65	5.4085	

NRS = Numeric Rating Scale, NDIS = Neck Disability Index Scale, S.D = Standard Deviation S.S = Statistically Significant. The table infers that post NRS and NDIS for both groups are statistically significant with P<0.001

Pain Analysis: Comparison of pre and post Numeric Rating Scale (NRS) using Alexander technique (table 1), shows pre NRS 7.4 and post NRS reduced to 2.25, gives t-value 17.1 thus giving significant result with p<0.001.

Comparison of pre and post NRS using Jacobson relaxation technique (table 3), shows pre NRS 7.6 and post NRS reduced to 4, given t-value 19.6, thus giving a significant result with p<0.001.

Disability Analysis: Comparison of pre and post Neck Disability Index Scale (NDIS) using Alexander technique (table-2), shows pre NDIS value 28.7 and post NDIS reduced to 5.55 giving t value 23.1, a significant result with p<0.001.

Comparison of pre and post NDIS using Jacobson relaxation technique (table-4), shows pre NDIS value 32.2 and post NDIS reduced to 10.8 giving t-value 18.2 a significant result with p<0.001

Efficacy Analysis between two Groups: (Table-5) analyzed the overall improvement of both parameters i.e., pain intensity and functional disability. This table analyzed post NRS of group A with post NRS of group B with mean difference of 2.25 and 4 respectively with t value 6.4754,thus giving a statistically significant result p<0.001. The table also analyzed post NDIS of group A with post NDIS of group B giving mean difference of 5.55 and 10.8 respectively with t value 5.4085 thus giving a statistically significant result p<0.001.

Brouce I. Kodish "Alexander technique has benefited people with mechanical cervical pain, postural disorders and stress"[5]. Dave Thompson "Alexander technique is more effective in relieving non specific neck pain and improving functional activity"[6]. The statistical results of the study for group A table 1 and 2 with Alexander technique shows that there is reduction in pain level and improvement in functional activity with p value of < 0.001. Alexander technique focuses on postural correction and improving the awareness of correct pattern of movement. The cause of pain is habitual tightening of neck muscles which people are unaware. This results in stiffening of head on spine. This tightening blocks information regarding sense of balance and interferes with ability to perform activities. In course of time, the faulty posture and faulty pattern of movement becomes habitual and compensates for sensory misinformation. This faulty pattern appears to be normal and contributes to a greater stress and discomfort in individuals. Viijonen M, Malmivaara states that "Jacobson progressive muscle relaxation is a systematic technique a deep state of relaxation"[7]. The statistical results of Group B: Jacobson relaxation technique in table 3 and 4 shows that pain is reduced with a statistical significance of p value of < .001. Jacobson technique focuses on initial tension followed by relaxation and releases muscle tightness and reduces pain. Jacobson demonstrated the deep relationship between muscle, thoughts and emotions which affected the level of muscular tension. This method is based on concentration of attention in a muscular group by paying attention to the sensation it produces. Alexander technique offers a way to let go of such destructive tension by learning to coordinate our activity with minimal strain. Vernon H "Neck Disability Index Scale is one of the best validated self report measures for assessing the impact of mechanical cervical pain. Thus statistical analysis shows that Group A individuals who were given Alexander technique had much relief of pain with improved functional activity compared to Group B individuals who were given Jacobson relaxation technique[8].

Conclusion

This comparative study using Alexander technique and Jacobson relaxation technique in school teachers with mechanical cervical pain showed that both the interventions were effective in reducing pain intensity and improves the functional activity. This study predicts that group-A showed better improvement when compared to group-B. This study concludes that "Alexander technique is more effective in subjects with mechanical cervical pain". This study will be useful for selection of intervention in mechanical cervical pain subjects.

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