

# Effect of Structured Progressive Exercise Protocol on Management of Chronic Cervical Spine Pain

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## ABSTRACT

### INTRODUCTION

Neck pain is a common degenerative condition which is associated with poor posture and advanced age related to wear and tear. It is the one of the causes of dysfunction, like low back pain. Neck pain is one of the most common conditions for referral management by a physical therapist. The most commonly intervention for the management of neck pain are exercise and rest followed by analgesics. Despite the prevalence of neck pain, there is a lack of evidence for commonly used rehabilitation interventions.

### OBJECTIVE

To find out the effect of structured progressive exercise protocol for patients suffering from chronic cervical spine pain.

### METHODOLOGY

A quantitative experimental research approach with pre-test post-test control group design was conducted in CIRS, Bhubaneswar, Odisha. The sample comprised of 60 patients suffering from chronic cervical spine pain. The samples were purposively selected and conveniently assigned to 30 in each experimental and control group. The background data were taken through structured interview schedule. Followed by assessment of cervical pain through structured pain assessment proforma, visual analog scale and the neck disability index. The data were analysed by descriptive and inferential statistics in terms of frequency, percentage, mean, median, and "t" test.

**RESULTS:** The significant findings of the study were that, the mean post-test Pain as well as NDI scores were significantly lower than the mean pre-test scores of the experimental group and control group. Mean post-test mean (3.3), SD (1.93) of level of cervical pain were significantly reduced than the pretest mean (4.8), SD (1.27) as evident from the 't'-test was 3.70. df, 28 at 0.05 level of significance. Similarly, the post-test mean (5.48) and SD (0.62) of neck disability index in cervical pain were significantly reduced than the pretest mean (7.11) and SD (0.28) as evident from the 't'-test was 3.01 at df, 28 differed significantly at 0.05 level of significance.

### CONCLUSION:

Findings of the study revealed that structured exercise protocol would be very helpful in alleviating chronic cervical spine pain and found to be more effective in experimental group than the control group.

**KEYWORDS:** Structured progressive exercise programme, Chronic cervical spine pain

### INTRODUCTION

Cervical spine pain is a common musculoskeletal disorder. The prevalence of neck pain in the normal population aged over 40 is approximately 20% [3,4] Degenerative changes of the cervical spine, evident on radiographic examination, are part of the normal physiologic ageing process [1,2]. The finding that the changes of the cervical spine are common in most of the individuals has challenged to face their activity of daily living [5]. Fewer studies have examined that the cervical spine, have identified a association between the number of levels of cervical spine degeneration, aggravating

factors and the associated disability which mostly seen in womem [6]. Exercise is a specific therapeutic intervention to treat low back pain and cervical spine pain which may have different exercise programs and are more appropriate for individuals having chronic neck pain.[7, 8]

### STATEMENT OF THE PROBLEM

Assess the effect of structured exercise protocol in individuals with chronic cervical spine pain.

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**OBJECTIVES**

1. To assess the level of pain in patients of chronic cervical spine.
2. To evaluate the effect of structured exercise protocol for patients suffering from chronic cervical spine pain.

**METHODS AND MATERIALS:**

A quantitative research approach with pre and post-test control group design was conducted in CIRS, Bhubaneswar, Odisha. A total of 60 samples were selected through purposive sampling technique and assigned them randomly to the groups as 30 in each experiment & control group.

The samples were taken according to their inclusion criteria like; 20-50 years of individuals having history of neck pain more than three months, VAS more than 3, NDI > 20%. Children, having signs and symptoms of neurological disorders, previous or present of history of trauma with or without structural disorders in the neck, shoulder and head, Neoplasm of head and neck, etc were excluded from the study. To collect the data a structured interview schedule was taken for demographic data followed by structured performa for physical assessment. The cervical neck pain assessment included as type of pain, nature of pain, aggravating factor, relieving factor, behaviour, irritability, gait and motion sickness. After that, the neck disability index, VAS, the self-structured assessment instrument to measure the rate of disability due to neck pain was taken.

**PROCEDURE:**

The Structured exercise program was given for 10-12 repetitions for 15 minutes a day for 2 weeks. Supine lying upper limbs elevated above head to reduce cervical lordosis through Supine lying pressing against plinth, Chin tucks in

supine lying, Chin tuck and neck flexion in supine lying, Neck flexion to look at toes. The Extension exercises-prone lying done through Looking in front prone lying without chin lift, looking up with chin lift, Neck extension without forearm support, Neck extension with forearm support, Right upper limb followed by left upper limb stretched in front with neck extension & rotation to right, finally both the upper limbs stretched out with extension of neck.

**RESULT AND DISCUSSION**

Most of the samples (60%) of the experiment group whereas (40%) of the control group were 31-40years of age. 62% Samples in the experimental and 58% in the control group were males and rest of were females. In religion many of the subjects 76% of the test group were Hindus. As regard to education more numbers 64% of the treatment group were having graduate whereas only 40% of the control group were having postgraduates. Majority of the samples 56.3% in experimental group 60% in control group werelabourer.

The data depicted in figure- 1 shows that; As regard to type of pain 27% of the treatment group were having stabbing & sharp pain whereas 40% of the control group were having only sharp pain. In nature of pain all the samples of both the groups were having presence of chronic cervical pain. Further it shows 27% of experimental group-I and 33% of control group were having prolonged bending as an aggravating factor. Similarly, the relieving factors of pain shows 27% of experimental group were by raising & as day progress whereas 27% of control group were by lying position. All the samples of both the groups were having normal gait and no motion sickness were present.

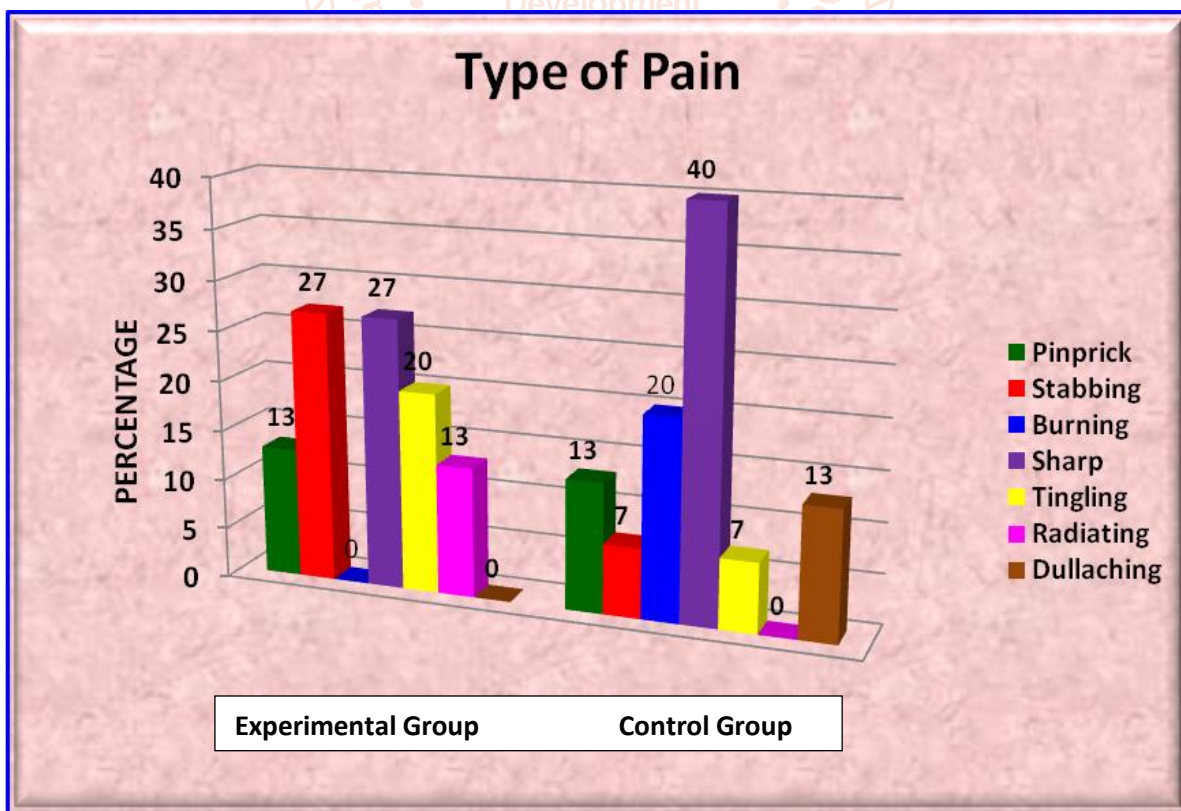


Figure-1: Types of pain found in chronic cervical spine pain in experimental and control group.

**Table-1: Mean, Standard Deviation & 't' test of pre-test & post level of cervical spine pain among experimental and control group**

**N = 60**

Level of cervical spine pain	Experimental group (n = 30)			Control group (n = 30)		
	Mean	SD	't' test	Mean	SD	't' test
Pre-test	4.8	1.27	3.70*	5.5	1.71	0.81 <sup>NS</sup>
Post test	3.3	1.93		5.2	1.64	

$\alpha \leq 0.05$  level of significance

Table- 1 shows that, In Experimental group, the post-test mean (3.3), SD (1.93) of level of cervical pain were significantly reduced than the pretest mean (4.8), SD (1.27) as evident from the 't'-test was 3.70. Which was a true difference and not by chance. Where as in control group in post-test means (5.2) and SD (1.64) of level of cervical pain were significantly not reduced than the pre-test mean (5.5) and SD (1.71) as evident from the 't' value was 3.70 at df 29 in less than 0.05 level of significance. So, it was inferring that the level of cervical pain was reduced in treatment group than the control group after receiving structured exercise protocol.

**Table-2: Mean, Standard Deviation & 't' test of pre-test & post Neck Disability Index among experimental and control group**

**N = 60**

Neck Disability Index	Experimental group (n = 30)			Control group (n = 30)		
	Mean	SD	't' test	Mean	SD	't' test
Pre-test	7.11	0.28	3.01*	6.48	0.28	1.48 <sup>NS</sup>
Post test	5.48	0.62		6.30	0.24	

$\alpha \leq 0.05$  level of significance

Table- 2, shows that, In Experimental group, the post-test mean (5.48) and SD (0.62) of neck disability index in cervical pain were significantly reduced than the pretest mean (7.11) and SD (0.28) as evident from the 't'-test was 3.01. Which was a true difference and not by chance. Where as in control group in post-test means (6.30) and SD (0.24) of neck disability index of cervical pain were significantly not reduced than the pre-test mean (6.48) and SD (0.28) as evident from the 't' value was 1.48 at df 29 in less than 0.05 level of significance. So, it was inferring that the neck disability index of cervical pain was reduced in treatment group than the control group after receiving structured exercise protocol.

**Table -3: Association between the level of cervical pain with selected demographic variables**

**N = 60**

SL NO	DEMOGRAPHIC VARIABLES	Df	CHI SQUARE VALUE (X <sup>2</sup> )	P value	LEVEL OF SIGNIFICANCE
1	Age	3	7.80	0.04	Significant
2	Gender	1	7.79	0.04	Significant
3	Occupation	3	3.19	0.05	Significant
4	Presence of number of aggravating factors	3	5.79	0.05	Significant
5	Duration of experience of pain	2	7.62	0.04	Significant

The table-3, reveals that the association between level of cervical pain and selected demographic variable of the samples revealed that there was significant association ( $p \leq 0.05$ ) as evident from the chi value with variables such as Age, Gender, Occupation, Presence of number of aggravating factors, Presence of number of aggravating factors and duration of experience of pain.

#### ETHICAL CONSIDERATION

Purposes of the study were explained to the samples, consent taken and confidentiality was assured. Permission obtained from the Head of the Department. No problem was faced during the data collection period. There was full co-operation from the sample, staff, and administration.

#### CONCLUSION

On the basis of the findings, crinic cervical spine pain having significantly differ in VAS scores and NID scores as observed in pre and post-therapy with the control group. Further it also shows that structured exercise protocol was significantly reduced perception of individuals in chronic

cervical spine pain. So it was concluded that the exercise was effective at reducing pain and increasing function compared with usual care.

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