

EFFECTIVENESS OF QUADRICEPS STRENGTHENING EXERCISES WITH 3Kg WEIGHT ON SITTING POSITION TO REDUCE PAIN IN OSTEOARTHRITIS KNEE PATIENTS - AN EXPERIMENTAL STUDY

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Abstract-

BACKGROUND: Osteoarthritis (OA) knee joint is one of the major clinical problems in developing country. The World Health Organization is describe as Osteoarthritis is a degenerative joint condition. It causes pain, swelling and stiffness, affecting a person's ability to move freely. OA Knee is affect to person that locomotion problems. In the middle old age group people affected more in OA Knee. We can manage or treat the patient by exercise therapy in earlier stage.

AIM & OBJECTIVE: To find out Effectiveness of quadriceps strengthening exercises with 3kg weight on sitting position to reduce pain in Osteoarthritis knee patients.

Methodology: 25 subjects of age group 50 - 60 years were selected, who fulfilled the inclusion Criteria. Out of the 25 patients 15 subjects who were unilateral OA Knee and also those who scored between 6-8 in Visual Analog Scale (VAS). 15 subjects who selected were treated quadriceps strengthening exercises with 3kg weight on sitting position for a period of 4 weeks. The pretest and post-test measurement was taken using VAS scale.

RESULT: The pretest and post-test mean values of VAS scale scored was analyzed using the paired 't' test. For 14 degrees of freedom and 5% level of significance, the table's' value is 1.729 and calculated 't' value 39.27. Since the calculated' value was greater than table's' value null hypothesis is rejected.

CONCLUSION: This study it can be concluded that quadriceps strengthening exercises with 3kg weight on sitting position to reduce pain in Osteoarthritis knee patients.

Keywords: VAS, Osteoarthritis, Knee Joint, Quadriceps strengthening exercises, 3kg weight

INTRODUCTION:

Osteoarthritis knee joint is one of the major clinical problems in developing country. The World Health Organization is describe as Osteoarthritis is a degenerative joint condition. It causes pain, swelling and stiffness, affecting a person's ability to move freely. The Knee joint formed by lower end of femur and upper end of tibia and posterior articular part of patella. It have two compartment Tibiofemoral articulation and Patellofemoral articulation. Knee joints are synovial joint type and modified hinge verity. The common factors to form OA knee are Obese, Aging, Over load to knee. Females are more affected persons than male.OA Knee is affect to person that locomotion problems. In the middle old age group people affected more in OA Knee. We can manage or treat the patient by exercise therapy in earlier stage.To find out Effectiveness of quadriceps strengthening exercises with 3kg weight on sitting position to reduce pain in Osteoarthritis knee patients for a period of 4 weeks.

METHODOLOGY:

A total number of fifteen subjects were selected in Physiotherapy department of MRV Advance Physiotherapy Center and Shamadeva Physio Care by purposive sampling method by who fulfilled the inclusion criteria. The study was pretest and post-test for a single group experimental study in nature. The treatment was conducted for a period of 4 weeks. The subject was selected by using purposive sampling method. pretest taken using Visual Analog Scale (VAS) score assigned to quadriceps strengthening exercises with 3kg weight on sitting position. The Inclusion Criteria are patients Age between 50 – 60 years patients have selected in this study, the subjects were selected only unilateral OA Knee, 6-8 score in VAS. The Exclusion Criteria are the score above 8 in VAS, Uncooperative patients and other Pathological or associated problems in Neuro-Musculo-Skeletal. Before the patient treatment all the subjects were explained about the study and the procedure to be applied. They were asked to inform if they any discomfort during the course of study. Written consent was obtained from all the subjects.

PROCEDURE:

The person was made to high sitting on treatment table. Before starting the treatment protocol, We collect VAS score from all subjects. The VAS score should be 6-8. The exercise program for all days of 4 weeks. After four-week exercise program we were collected VAS score again from all 15 patients.

Quadriceps strengthening exercises with 3kg weight:

All subjects should be checked vital signs before starting program. Only stable persons should involve in to our study. 3Kg weight cuff should apply to the affected leg. Before and after treatment we advised to the patient do the breathing exercises.

Exercise 1:

Patients Position: High sitting

Command: Rise the leg (Knee Extension) , 20 counts hold

Repeats: 10 times

Exercise 2:

Patients Position: High sitting

Command: Rotate leg clock wise 20 counts the Anti-clock wise 20 count

Isometric Quadriceps Strengthening Exercises:

The patient was made to relaxed supine lying position in treatment table. And placed a towel below the affected knee joint. We have to give a command to the patients for pressing the towel

Patients Position: Supine lying

Command: Press the towel , 20 counts hold

Repeats: 10 times

DATA ANALYSIS

Visual Analog Scale (VAS) Score:

Mean values		Calculated 't' value	Table 't' value	Level of Significance
Pre test	Post test			
6.7	2.5	39.27	1.729 (one-tail)	P < 0.05 Significant

The pretest and posttest mean values of VAS score was analyzed using the paired 't' test. For 14 degrees of freedom and 5% level of significance, the table 't' value is 1.729 and calculated 't' value 39.27. Since the calculated 't' value was greater than table 't' value null hypothesis is rejected.

Result:

This study was conducted on 15 subjects. To find out Osteoarthritis knee was used VAS score. VAS score used was short version. The pretest and posttest mean values of VAS score was analyzed using the paired 't' test. Since the calculated 't' value was greater than table t' value null hypothesis is rejected. The overall result of this study is quadriceps strengthening exercises with 3kg weight on sitting position to reduce pain in Osteoarthritis knee patients for a period of 4 weeks.

Discussion:

All subjects are selected from Physiotherapy department of MRV Advance Physiotherapy Center, Coimbatore & Theni and Shamadeva Physio Care, A unit of Interactive physio E Learning, Vennandur.

Outcome measures included the VAS score to treatment (pretest) and at the end of 4 weeks of treatment (posttest). In this study aim was to find out the effectiveness of quadriceps strengthening exercises with 3kg weight on sitting position to reduce pain in Osteoarthritis knee patients. The overall effectiveness on VAS score was analyzed by paired 't' test after 4 weeks treatment which shows $p < 0.05$ which is significant.

From this study it can be concluded after the exercises program the pain is reduced followed by 4 weeks in Osteoarthritis knee patients.

Conclusion:

The aim of study is found out the effectiveness of quadriceps strengthening exercises with 3kg weight on sitting position to reduce pain in Osteoarthritis knee patients. 25 OA Knee patients were selected and assessed. Those who had VAS score between 6-8. Out of 25 members 15 subjects were selected. They received the exercise program.

The VAS score was measured before and after treatment session (4 weeks). Pretest and post test values of the study was collected and assessed for significant difference and their results were analyzed by using paired 't' test. This study concluded that quadriceps strengthening exercises with 3kg weight on sitting position to reduce pain in Osteoarthritis knee patients.

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