



Effect of Neuromuscular Exercises on Articular Cartilage Changes in Knee Osteoarthritis

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ABSTRACT

Background and Objective: Osteoarthritis is a chronic degenerative disorder characterized by Cartilage loss. It is extremely prevalent in society and is a major cause of disability. It is important to treat Osteoarthritis effectively using a multi-disciplinary approach tailored to the patient's needs. Neuromuscular Exercises have been proved effective in Reducing Pain, Function. But there is a lack of literature regarding the effect of Neuromuscular Exercises on changes in Articular Cartilage. Hence the need of the study arises. The Aim of the study was to find out the effectiveness of Neuromuscular Exercises in Reducing Pain, Improving Function and changes of Articular Cartilage Thickness in subjects with Knee Osteoarthritis.

Methods: Prospective study design. This study Includes 66 subjects with age of 35 to 65 years having a Clinical Diagnosis of Knee Osteoarthritis were randomly allocated in two groups. In Group I (n=33) subjects were treated with Conventional Exercises whereas in Group II (n=33) subjects were received Neuromuscular Exercises. Participants were given intervention thrice a week for 16 weeks. The outcome measures of this intervention were measured in terms of VAS for Pain, WOMAC score for Function, and MRI for Cartilage Thickness.

Results: Independent t` test was used to compare the mean significance difference between continuous variables of WOMAC and MRI. Paired t` test was used to assess the Statistical difference between Pre and Post test scores of WOMAC and MRI. The ANOVA was used to compare the mean scores of VAS within the groups. Statistical Analysis of the data revealed that within the group comparison and in between groups showed significant Improvement in VAS and WOMAC. However within and between comparison of MRI there is no significant difference between the groups.

Conclusion: After 16 weeks of Intervention both Conventional Exercises and Neuromuscular Exercises showed significant Improvement in Reducing Pain and Improving Functional performance, but there is no significant change in Articular cartilage Thickness. However Neuromuscular Exercises were found to be more effective when compared to the Conventional Exercises for reducing Pain and Improving Function. From the findings of the current study, it can be recommended that the Neuromuscular Exercises protocol can be used for mild to moderate Knee Osteoarthritis for Pain and Functional Ability.

Keywords: Knee Osteoarthritis, VAS, MRI, WOMAC, Conventional Exercises, Neuromuscular Exercises

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SUMMARY

TITLE: EFFECT OF NEUROMUSCULAR EXERCISES ON ARTICULAR CARTILAGE CHANGES IN KNEE OSTEOARTHRITIS

PURPOSE: The purpose of the study was to find the effectiveness of Neuromuscular exercise programme in Subjects with a clinical diagnosis of Knee Osteoarthritis .

METHODS: Prospective study design. This study includes 66 subjects having a clinical diagnosis of Knee Osteoarthritis. In Group-I (n=33) subjects were treated with Conventional Physiotherapy whereas in Group-II (n=33) subjects were treated with Neuromuscular exercises. Participants were given intervention thrice a week for 16 weeks. The outcome measures of this intervention were measured in terms of VAS for Pain, WOMAC score for Function and MRI for Cartilage Thickness.

RESULTS: Independent Student t` test was performed to assess the statistical difference in Mean value between the groups for Visual Analogue Scale Pain, WOMAC for Function and MRI for Articular Cartilage Thickness. Paired Student t` Test was performed to assess the statistical difference within the groups for Pain, Function from Pre test and Post test value.

ANOVA test was performed to assess the statistical difference within the group for VAS.

Statistical analysis of the data revealed that between the group comparison, both groups showed significant Improvement in VAS and WOMAC. However, analysis between the groups shows that Neuromuscular Exercises programme was better Improvement than Conventional Physiotherapy.

CONCLUSION: After 16 weeks of Intervention Conventional and Neuromuscular Exercises showed significant Improvement in Reducing Pain, Functional performance and Insignificant in the Cartilage Thickness. However Neuromuscular Exercises were found to be more effective when compared to Conventional Physiotherapy for Pain and Function. From the findings of the current study, it can be recommended that the Neuromuscular Exercises protocol can be used to treat mild to moderate Knee Osteoarthritis.

Keywords: Knee Osteoarthritis, VAS, MRI, WOMAC, Conventional Exercises, Neuromuscular Exercises.

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