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## **A comparative study on the effectiveness of muscle energy technique and active release technique in the management of hamstring tightness among athletes**

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### **Abstract**

Muscle tightness is defined as the decrease in the ability of the muscle to deform, resulting in a decrease in the range of motion at the joint on which it acts. Hamstring muscle tightness is the inability to extend the knee completely when the hip is flexed accompanied by discomfort or pain along the posterior thigh and or knee. Hamstring muscle injuries are one of the most common musculotendinous injuries in the lower extremity. They occur primarily during high speed or high intensity exercises and have a high rate of recurrence. Lack of hamstring flexibility was the single most important characteristics of hamstring injuries in athletes. MET is a manual therapy intervention that can be used to stretch or lengthen muscles and fascia that lack flexibility. MET requires the patient to create a force by activating the targeted musculotendinous unit against a precisely directed counter-force applied by the clinician, followed by relaxation and a passive stretch applied by the clinician. Active release technique is the combination of site specific manual pressure with precise patient movement that makes ART unique to other manual therapy. It is used in patients with acute injuries such as tears, pulls, contractures and in patients with overuse injuries and micro trauma tears.

**Keywords:** Muscle energy technique: Active release technique, modified sit and reach test.

### **Introduction**

#### **Background**

**Study Purpose:** The purpose of the study is to find the effectiveness of muscle energy technique and active release technique in the management of hamstring tightness among athletes.

**Study Design:** Pre and post-test, randomized control study

**Method:** 20 subjects with bilateral hamstring tightness aged between 19-24 years were included in the study and divided into two groups.

Group A received Muscle energy technique and Group B received Active release technique and the flexibility was assessed by modified sit and reach test. In MET The patient is made to lie supine on the treatment table with the hip and knee of the affected limb flexed at 90 degrees. The therapist stands facing patient at the hip level. Depending upon whether it is an acute situation or a chronic one, the isometric contraction against resistance is introduced at the barrier (acute) or in the mid-range (chronic) that no more than 25% of patient's effort should ever be used at any time during isometric contraction. Following the 7-10 seconds of contraction and complete relaxation, Repeat until no further gain is possible. In Active release technique the patient is in side lying position with the affected side uppermost with the hip flexed and knee extended. The therapist applies deep tension at the origin of the hamstring muscle while the patient is instructed to move the limb from a shortened position to a lengthened position. The placing of contact near the lesion and causing the patient to move in a manner that produces a longitudinal sliding motion of muscles beneath the contact point.

**Results:** Analysis of Dependent variable tightness in group A: The calculated paired 't' value is 5.4718 and 't' table value is 3.250 at 0.005 level.

Since the calculated 't' value is more than 't' table value, it shows that there is significant difference in tightness following muscle energy technique in patients with hamstring tightness.

**Analysis of Dependent variable tightness in group B:** The calculated paired 't' value is 21.948 and 't' table value is 3.250 at 0.005 level. Since the calculated 't' value is more than 't' table value, it shows that there is significant difference in tightness following active release technique in patients with hamstring tightness.

**Analysis of Dependent variable tightness in group A and Group B:** The calculated unpaired 't' value is 11.428 and 't' table value is 2.878 at 0.005 level. Since the calculated 't' value is more than 't' table value, it shows that there is significant difference between muscle energy technique and active release technique in patients with hamstring tightness. When comparing the mean values of Group A and Group B, Group B subjects treated with active release technique showed more difference than Group A.

### Conclusion

From the results, it can be concluded that there is significant reduction of tightness in both the groups but when comparing the mean value it is found out that the group B treated with active release test is more effective than group A treated with muscle energy technique.

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