

Release technique effectiveness of myofascia with and without eccentric exercise for quadriceps tendinopathy in athletes

K Madhu Babu^{1*}, Manikantha², G Shilpa³

¹Associate Professor, Department of Physiology, Katuri Medical College, Guntur, Andhra Pradesh, India

²Assistant Professor, Department of Pathology, Katuri Medical College, Guntur, Andhra Pradesh, India

³Professor, Department of Physiology, Katuri Medical College, Guntur, Andhra Pradesh, India

Received: 26-11-2021 / Revised: 09-12-2021 / Accepted: 14-01-2022

Abstract

Background: Quadriceps Tendinopathy is commonly seen in Athletes, basketball players, weight lifters and even in Badminton players also. Many studies are available in the literature on Tendinopathies, very few are there on **quadriceps**tendinopathy. No studies are there on Tendon release therapy with and without Eccentric exercise. So, purpose of this study is to compare the effectiveness of Myofascial Release Technique in combination with Eccentric Exercise and without Eccentric exercise in **quadriceps**tendinopathy. **Methods:** It is an experimental study which was conducted on thirty athletes who were randomly assigned into Myofascial Release Technique (TRT) Group-A and Tendon Release therapy with Eccentric exercise (TRTE) Group-B. Group A received only TRT and Group B received Tendon Release Therapy with eccentric exercise. TRT for 5min daily one session, Eccentric Exercise for 10 repetitions daily one session. Total duration of study is for 12 weeks. Both groups ROM, MMT and PREE values are recorded on first day of treatment and after 12 weeks. Values were analyzed statistically, the pre-post values of both the groups were analyzed by using students 't' test and post-post values were analyzed using ANOVA. **Results:** Both groups showed decrease in pain and improvement in strength, ROM and function, whereas Myofascial Release Technique with Eccentric exercise group-B showed significant decrease in pain, improved muscle strength, ROM and overall function of Knee with a P value of P<0.0001. **Conclusion:** The results suggest that Myofascial Release Technique with eccentric exercise gave superior result in decreasing in pain, improving ROM, Strength and overall performance of elbow.

Key Words: Myofascial Release Technique, Eccentric exercise, MMT (Manual muscle testing), ROM (Range of motion), PREE (Progressive resistance exercise), Triceps tendinopathy

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Introduction

The present study was done on 30 individuals. This study is done at Sims College of physiotherapy, outpatient department Guntur. The subjects will be considered for this study only after they sign on an approved consent form. All the individuals were randomly divided into two groups. Group-A received Myofascial Release Technique and Group-B received Myofascial Release Technique with Eccentric exercise, Myofascial Release Technique was done for 5 min daily for 12 weeks and Eccentric exercise training is given after Myofascial Release Technique. After 12 weeks ROM, Strength, Pain and function were measured with Goniometer[1], Manual Muscle testing scale by Kendall[2], PREE (Joy MacDermid)[3] respectively.

Results and discussion

Figure 1

P value

The two-tailed P value is < 0.0001, considered extremely significant.

Table 1: Post-Post Knee Ext Rom Values of Group A and B

Parameter	MFR	MFR+EE
Mean	96.433	133.35
Std. deviation	5.144	5.124
Std. error	1.333	1.333
T value	20.223	
F value	1.000	

*Correspondence

Dr. K Madhu Babu

Associate Professor, Department of Physiology, Katuri Medical College, Guntur, Andhra Pradesh, India.

E-mail: madhu.koduru@yahoo.co.in

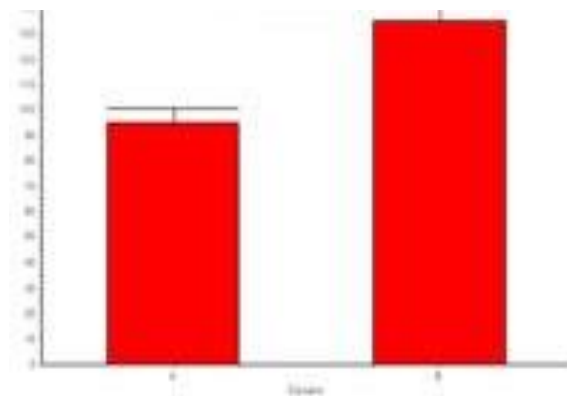


Fig. 1: Post-Post KNEE EXT ROM values of group A and B

P value

The two-tailed P value is < 0.0001, considered extremely significant.

Table 2: POST-POST Knee MMT VALUES OF GROUP A and B

Parameter	TRT	TRT+EE
Mean	15.313	5.313
Std. deviation	5.262	5.264
Std. error	1.333	1.333
T value	5.313	
F value	1.000	

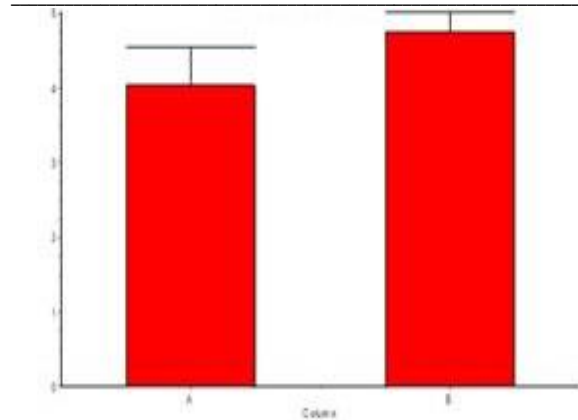


Fig. 2: Post-Post Hamstring Mmt Values of Group A and B
P value

The two-tailed P value is < 0.0001, considered extremely significant.

Table 3: Post-Post Hamstring MMT Values Of Group A and B

Parameter	TRT	TRT+EE
Mean	4.132	4.467
Std. deviation	0.5262	0.2382
Std. error	0.1333	0.06667
T value	4.813	
F value	4.000	

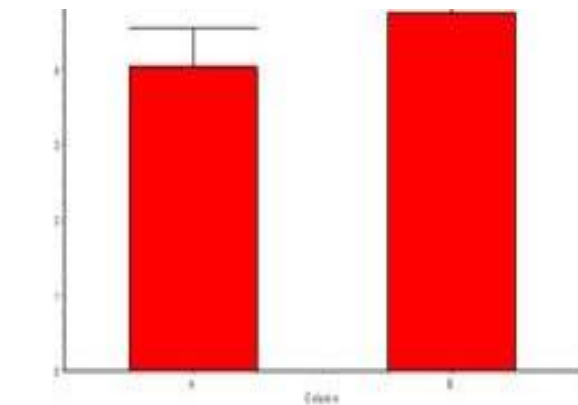


Fig. 3: Post-Post Quadriceps MMT Values of Group A and B

P value

The two-tailed P value is < 0.0001, considered extremely significant.

Table 4: Post-Post PREE Values of Group A and B

Parameter	TRT	TRT+E.E
Mean	34.020	11.000
Std. deviation	4.246	4.326
Std. error	1.093	1.093
T value	16.302	
F value	1.000	

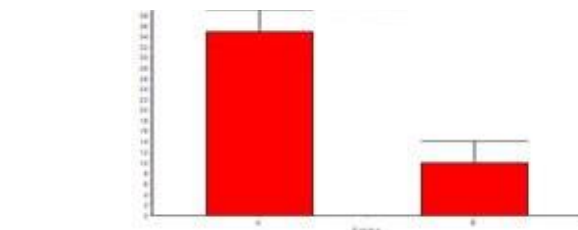


Fig 4: Post-Post PREE Values of Group A and B

Results

This study on 30 athletes with quadriceps tendinopathy both male and female for 12 weeks of duration showed significant difference between Myofascial Release Technique and Myofascial Release Technique with Eccentric Exercise with $P < 0.0001$ which is considered extremely significant in decreasing pain, improving ROM, strength and overall function of elbow in Triceps tendinopathy suggesting Myofascial Release Technique with eccentric exercise is better than Myofascial Release Technique alone.

Discussion

Results of the present study for 12 weeks of duration showed significant difference between Myofascial Release Technique and Myofascial Release Technique with Eccentric Exercise with $P < 0.0001$ in decreasing pain, improving ROM, strength and overall function of **Knee in quadriceps** tendinopathy. D. Hopper *et al*[4]. in their study revealed that Soft tissue Manipulation significantly increased hamstring flexibility which increased hip flexion angle and M.A Young *et al*[5], concluded that declined squat exercise by progressing with load offers greater clinical gains in relation to knee function in patellar tendinopathy. Similarly in the present study there is a noticeable increase in flexibility of Knee which was due to increase in extensibility of collagen fibers over the myotendinous region of **quadriceps** by Myofascial Release Technique with eccentric exercise. In another study by P.M Tiduset *et al.* who said that STM was not an effective treatment for enhancing long term restoration of post exercise muscle strength. Whereas Vasseljen, *et al.* improvements in pain- free knee extension strength is possible when STM is applied in combination with other Physical modalities. Karsten Knobloch *et al.* concluded that eccentric exercise training program performed daily over 12 weeks was beneficial in increasing micro circulation which increases muscle strength. In this study it is observed that there is gradual increase in muscle strength as the pain is reduced by the end of 12 weeks which resulted from eccentric exercise and soft tissue Manipulation due to increased local blood flow to the area and increased metabolic rate in the exercised muscles. Michael F Joseph *et al*[6]. suggested that Soft tissue Manipulation as a single modality of treatment in comparison with other methods has not been showed its isolated efficacy in relation to overall function whereas Manual therapy along with supervised exercise will decrease pain, increase strength and function (Michael D. Bang)[7]. PREE in this study in both groups showed improvement but when compared in between both of them, Myofascial Release Technique with eccentric exercise acquired significant result in relation to pain, function around Knee which may be due to increase in both local circulatory as well as metabolic changes by Myofascial Release Technique and improvement in joint flexibility, strength of Knee musculature because of eccentric exercise by increasing extensibility and force of contraction of muscles around Knee. Both of these effects by soft tissue manipulation and eccentric exercise improved overall function in quadriceps Tendinopathy.

Acknowledgements

The authors would like to thank all the subjects for their cooperation in the study.

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Conflict of Interest: Nil Source of support: Nil