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EFFECTIVENESS OF PATELLAR TENDON FASCIAL MANIPULATION WITH CONSERVATIVE MANAGEMENT OF PATELLAR TENDINOPATHY

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ABSTRACT

The Fascial Manipulation along with conservative treatment is more beneficial than only conservative treatment. But there is no satisfactory physiological explanation for this. This study was performed on a small group. There were total 30 patients out of them there are 15 in group A and group B each. The mean age of patients in group A is 28.33± 3.15 while the mean age of patients in group B 30.66 ± 4.01. The t-test result shows that there is no significance difference in mean age of patients in two groups. The Fascial Manipulation along with conservative treatment is more beneficial than only conservative treatment. In the present study, the effectiveness of Fascial Manipulation along with conservative treatment in jumper's knee was established till the end of the study. However there is a need of follow up further.

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INTRODUCTION

Patellar Tendinosis occurs due to inflammation in the patellar tendon, the band of tissue that connects the knee cap (patella) to the shinbone (tibia).Patellar tendonitis is caused by excessive jumping. Other repetitive activities such as running, walking, or cycling may also lead to patellar tendonitis. These activities put repeated stress on the patellar tendon. This causes the tendon to become inflamed (Blazina *et al*., 1973). Patellar tendonitis can also occur in people who have alignment problems in their legs. This alignment problem can result from having wide hips, being knock-kneed, or having feet that roll inward when you walk or run (over-pronation). Patellar tendinosisis common in elite athletes participating in jumping sports such as volleyball and basketball. A survey of literature indicates that 53% of their elite basketball players had symptoms of Patellar tendinosis, with symptoms ranging from mild to disabling (Cook *et al*., 2006).

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Despite of a large number of literature available about the clinical, radiological, and pathophysiological nature of this disorder, the exact pathoaetiological processes involved in the development of Patellar tendinosis remain unclear (Fahlstrom *et al*., 2003). There are numerous inconsistencies in the current degenerative or failed healing approach to tendinosis and there is little support for an inflammatory aetiology. Based on clinical observation, basic science, in vitro and in vivo research, and histological studies reviewed, we propose that the process of tendinosis is not degenerative, but rather an adaptive response to differrential forces within tendons (Hamilton *et al*., 2004)

METHODS

Thirty patellar tendons from 30patients with a long duration of pain from the proximal patellar tendonand referred to the physiotherapy and Orthopaedic Department wereincluded in the study.

INCLUSION CRITERIA

The following criteria were used for inclusion in the study-

- Subject's reports of tenderness with palpation of the inferior.
- Onset of symptoms a minimum of six weeks prior to participating activity.
- No anti-inflammatory oral medication or injection for at least two weeks prior to starting the study.
- No other current injury knee or lower extremity.
- Pain in the proximal patellar tendon during or after patellar tendon loading activity.
- Tenderness in the proximal patellar tendon during palpation.

Exclusion Criteria

- A history of patella-femoral pain
- Surgical treatment of the patellar tendon and knee arthritis
- Local Corticosteroid injection in last 3 months.
- Previous ACL injury or reconstruction.
- Chronic inflammatory or Rheumatic dis.
- Back pain

Materials : 25 ^{0} Decline board.

TOOLS

1-Visual Analogue scale, which deals with pain, and is a good functional rating system for active persons by Noyes FR et.al.[45a]
2-Goniometer for measurement of range of motion.

Dependent variable: VAS & Range of motion.

Indipendent variable: Fascial manipulation& therapeutic ultrasound.

TREATMENT PROTOCOL

There were two treatment protocol, first one was conservative treatment which include therapeutic ultrasound for 7 minutes, eccentric quadriceps training while standing on a decline board and quadriceps isometric training, Second was conservative treatment along with patellar tendon fascial manipulation. Both training groups were given careful instructions by the same physiotherapist on how to perform the training. Both practical and hand written instructions were given. The training program consisted of three sets of fifteen repetitions each, performed twice a day, 7 days a week for 12 weeks.

Eccentric Quadriceps training: The starting position for the eccentric quadriceps training was standing (trunk upright) on the 25^0 decline board with the entire body weight on the injured leg. From that position the knee was slowly flexed to 70^0. To return to the starting position, the other leg or if there were bilateral problems, the arms, were used. Concentric quadriceps activity was avoided as much as possible.

Fascial Manipulation: The manual therapy technique known as Fascial Manipulation&, presents a biomechanicdecipher the role of fascia in musculoskeletal disorders considering that the myofascial system is a three-dimensional continuum. Other authors present different models that all part from this basic concept of continuity. FascialManipulation&, the body is divided into 14 segments: head, neck, thorax, lumbar, pelvis, scapula, humerus, elbow, carpus, digits, hip, knee, ankle, and foot**.** Each body segment is served by six myofascial units (mf units) consisting of monoarticular and biarticular unidirectional muscle fibres, their deep fascia (including epimysium) and the articulation that they move in one direction on one plane.

Data analysis: The sample is based on the data from a prior study. The independent variables were allocated in two groups (A and B). A two way mixed model t-test was performed to test for the interaction of group and positions. Also test the main effects of group and position. Results was considered significant at an alpha level of less than or equal to 0.05 for all tests. The mean age of study subjects in group A & group B is depicted by table 1.

Table 1. Mean age of study subjects in group A & group B

Variable	Group A	Group B	t-value	p-value
Age (Years)	28.33±3.15	30.66±4.01	-1.71	0.09

The statistical analysis shows that the mean age of study subjects in group A 28.33 (±3.15) & group B 30.66(±4.01) is almost same (t=-1.71,p=0.09).Figure 1 represents bar graph of mean age of study subjects in group A & group B.

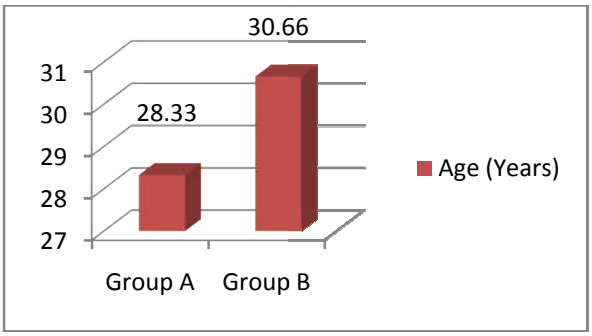

Figure 1. Mean age of study subjects in group A & group B

Table 2. Effect of different intervention on VAS

VAS	Group A	Group B	t-value	p-value
0 Day	7.07±1.10	6.93±1.10	0.33	0.740
7th Day	3.60±0.63	5.53±1.06	6.06	0.000
14th Day	1.67±0.72	3.80±0.86	7.34	0.000
Within Group Variation	F=157.90, p=0.000	F=36.90, p=0.000		

Table-2 reveals the effect of different intervention on VAS. At baseline period the mean VAS score was almost same in group A & group B (t=0.33,p=0.740) while the mean VAS score was drastically decreased in group A compare to group B in 7th and 14th day (t=6.06,p=0.000 & t=7.34,p=0.000).Within group variation shows a significant reduction on VAS from 0day to 14th day in both group (p=0.000) but this reduction was more sharp in group A. Figure 2 shows bar diagram of effect of different intervention on VAS. At baseline period the mean ROM score was almost same in group A & group B (t=0.47,p=0.642) while the mean ROM score was drastically decreased in group A compare to group B at 7th and 14th day (t=3.65,p=0.001 & t=6.14,p=0.000).Within group variation shows a significant reduction on ROM from 0day to 14th day in both group (p=0.000) but this reduction was more sharp in group A. Figure 2 shows bar diagram of effect of different intervention on ROM Table-3.

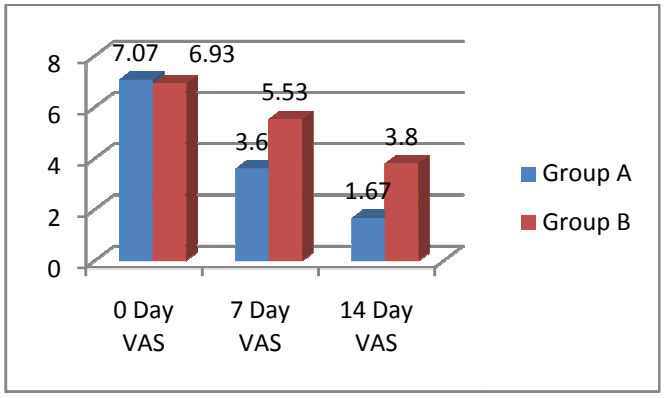

Figure 2.Effect of different intervention on VAS

Table 3. Reveals the effect of different intervention on ROM

ROM	Group A	Group B	t-value	p-value
0 Day	17.40±3.27	17.93±2.96	.47	0.642
7 Day	8.40±3.20	12.00±1.96	3.65	0.001
14 Day	1.80±1.32	5.40±1.88	6.14	0.000
Within Group Variation	F=120.12, p=0.000	F=110.29, p=0.000		

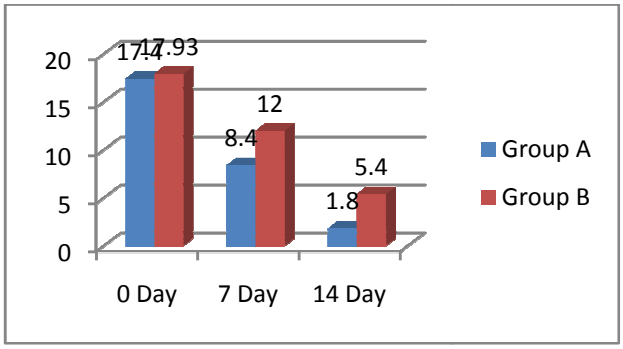

Fig. 3. Shown Group A and B Status in different Days

RESULTS

The distribution of patients according to personal characteristics. There are total 30 patients out of them there are 15 in group A and group B each. The mean age of patients in group A is 28.33 with SD 3.15 while the mean age of patients in group B 30.66 is with SD 4.01 The student's t-test shows that there is no significance difference in mean age of patients in two groups.

DISCUSSION

The short term results of this prospective randomized studyin athletes with chronic painful jumper's knee showedthat treatment with fascial manipulation along with eccentric quadriceps training, significantly reduced tendon painduring activity and improved function. These findings supportthe results from a recent non-randomized pilot study by Alessandro Pedrelli, PT, CarlaStecco, M.D., JulieAnn Day, PT.' In the current study, the diagnosis of jumper's knee wasestablished from clinical examination. In recent studies, neovesselsin the area with structural tendon changes, visualized withthe colour Doppler technique, have been demonstrated to be relatedto tendon pain during activity. The aim of our study was to see the effect of fascial manipulation along with conservative treatment.

To try to limit bias, the patients themselves evaluated treatment. The patients recorded the amount of patellar tendonpain during their sporting activity on a VAS Score and measured theirrange of motion on Goniometer. Patient satisfaction with treatment (satisfied/not satisfied) was also assessed. The myofascial connections within each MFU, and between different MFUs, can provide an alternative explanation for referred pain distribution , which often does not follow either nerve pathways or the morphology of a single muscle . When muscular fascia alters, it is feasible that the various motor units of the implicated muscles cannot coordinate their activity appropriately. Subsequent unaligned joint movement could cause non-physiological stretch of the receptors within the fascia, resulting in a nociceptive signal. In this way, according to Fascial Manipulation theory, when the CC is in an altered state it can be considered as the origin of pain (cause), and the joint (CP) as the area where pain is referred (consequence) Young *et al*., 2005.

According to pilot study, it is evident that after one session of Fascial Manipulation a certain reduction of pain was recorded in every patient and that these results can be maintained or may partially regress Richards *et al*., 1996. The aim of the Fascial Manipulation therapy is to restore gliding between the intrafascialfibres. Raising the temperature of selected areas of the fascia (corresponding to the CC points), via manual pressure, could allow for transformation of the ground substance, transforming it from a pathological status of GEL (dense fascia) to a physiological status of SOL (fluid fascia).

This variation in density probably allows for two events. Firstly, during the application of manual pressure, the connective tissue adapts and the intrafascial free nerve endings may slide within the fascia more freely, which could explain the sudden decrease in pain during massage in the treated area. The second event could evolve over the following days: with enhanced fluidity of the ground substance, physiological tensioning of the fibres within the fascia during muscular contraction could allow for correct deposition of new collagen and elastic fibres according to the lines of applied force. Subsequent restoration of gliding between connective tissue layers of the fascia would enable tensional adjustments during muscular contraction, resulting in appropriate tensioning of periarticular structures such as tendons and capsules. This restitution of elasticity to the fascia could also explain the satisfactory results maintained over time.

Limitations of the study

This study has shown that Fascial Manipulation with conservative treatment is more beneficial than only conservative treatment. But there is no satisfactory physiological explanation for this. This study was performed on a small group.

To establish the effectiveness of patellar tendon fascial manipulations with conservative treatment on Jumper's knee this should be done on a large group. Generalization of the study is very less because all the subjects are from same area. To increase the generalization, this study should be done on a wide range of patients. In the present study, the effectiveness of Patellar Tendon Fascial Manipulation with conservative treatment in jumper's knee was established till the end of the study. However there is a need of follow up further.

CONCLUSION

This study has shown that Patellar Tendon Fascial Manipulation with conservative treatment is more beneficial than only conservative treatment. But there is no satisfactory physiological explanation for this. This study was performed on a small group. To establish the effectiveness of Patellar Tendon Fascial Manipulations with conservative treatment on Jumper's knee this should be done on a large group. In the present study, the effectiveness of Patellar Tendon Fascial Manipulation with conservative treatment in jumper's knee was established till the end of the study. However there is a need of follow up further.

REFERENCES

Blazina ME, Kerlan RK, Jobe FW, Carter VS, Carlson GJ. 1973. Jumper's knee. *Orthop Clin North Am*., Jul 4 (3):665-78. [Medline].

Cook JL, Khan KM, Kiss ZS. 2000. Griffiths L: Scand Journal of medical science sports., 10(4):216-2

Eccentric calf-muscle training.kneesurg sports traumatol arthroscopy 2003;11:327-33

Fahlstrom M, Jonsson P, Lorentzon R. 2004. Chronic Achilles tendon pain treated with Hamilton B, Purdam C. Patellar tendinosis as an adaptive process: a new hypothesis. *Br J Sports Med.,* 38:758-61

Pierre Rouzier, M.D. 2002. McKesson Clinical Reference Systems. Published by McKesson Clinical Reference Systems.97-McKesson Health Solutions LLC.

Richards DP, Ajeman SV Wiley JP *et al*. 1996. knee jt. Dynamics predict patellar tendinitis in elite volleyball players: Am Journal of sports medicine,1996; 24(5): 676-83

Young MA, Cook JL, Purdam CR, *et al*. 2005. Eccentric decline squat protocol offers superior results at 12 months compared with traditional eccentric protocol for patellar tendinopathy in basketball players. *Br J Sports Med.,* 39:102–5

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