International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Effect of IASTM vs MFR on IT band & Hamstring Flexibility and Pain in OA Knee Patients

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Abstract: ***Background: OA is regarded a major public health problem, as it is reported by the world health organisation. It has multifactorial etiology and affects approximately and affects approximately 60% of individuals older than 50 years of age. OA is primarily a cartilage disease as it is characterized by the progressive loss of hyaline articular cartilage. Ultimately, the articular cartilage. OA can cause pain, stiffness, swelling, joint instability and muscle weakness, all of which can lead to impaired physical function and reduced quality of life. Hamstring flexibility is important to maintain full range of motion (ROM) of joint and musculoskeletal function while preventing damages. Iliotibial (IT) tract, or band, is a lateral thickening of the fascia lata that is composed of the distal fusion of the muscular fascia of the gluteus maximus and tensor fascia lata muscles. IASTM is a technique that involves using instruments to address musculoskeletal pathology - related impairments and help heal soft tissues. Myofascial release (MFR) is one of the commonly utilized manual techniques to facilitate the stretching of corresponding tissue continuously or enhance the extensibility of soft tissue through compression while restoring restricted fascia. Aim: Methodology: 44 patients were selected on the basis of inclusion and exclusion criteria. They were randomly allotted with 1: 1 to either group A & B, both the groups received IASTM + conventional therapy and MFR + conventional therapy. outcome measures were taken. Statistical Analysis & Result: Results of the study were analysed in terms of pain relief indicated by decrease in NPRS scores, increase in range of motion of knee joint using IASTM And MFR, reduction in disability and increase in HAMSTRIND &IT BAND Flexibility which was measured using Universal goniometer. The age of the participants in this study was from 40 to 60 years. Total 44 participants participated in the study that was randomly allocated to two groups. The mean age of participants in both groups is 51.2 and 52.3 years. Conclusion: The study concludes that IASTM have more beneficial effect compare to MFR On decreasing pain, increasing knee range of motion and improving IT band & hamstring muscle flexibility in patients with OA of Knee.***

Keywords: OA Knee, MFR & IASTM

1. Introduction

Osteoarthritis (OA) is regarded a major public health problem, as reported by the World Health Organization. It is one of the major causes of impaired function that reduces quality of life worldwide. **(1)** the knee is the most commonly affected joint, and knee OA patients present with a combination of inflammation, pain, stiffness, muscle atrophy and deformity. **(2)** Hamstring muscle is a two joint muscle spanning both hip joint and knee joints, functioning as a major muscle for hip extension, knee flexion, and pelvic posterior tilt movement (3) Iliotibial (IT) tract, or band, is a lateral thickening of the fascia lata that is composed of the distal fusion of the muscular fascia of the gluteus maximus and tensor fascia lata muscles (4) Myofascial release (MFR) is one of the commonly utilized manual techniques to facilitate the stretching of corresponding tissue continuously or enhance the extensibility of soft tissue through compression while restoring restricted fascia or normal muscular length**.** (5) Myofascial release (MFR) is one of the commonly utilized manual techniques to facilitate the stretching of corresponding tissue continuously or enhance the extensibility of soft tissue through compression while restoring restricted fascia or normal muscular length. (5)

2. Materials and Methodology

Study Site: Physiotherapy OPDs: GMERS hospital, Gotri, Vadodara, Yoginivasantdevi hospital, Vadodara, Matrushridavalbaa Ayurvedic hospital, Vernama, Vadodara.

Study Population: Bilateral OA Knee Patients

Study Duration: 12 month

Study Design: Interventional Comparative study

Inclusion Criatria: Age: 40 - 60 years, Male & female Patient with bilateral OA knee joint, Stage 1to3 of osteoarthritis (kellgren – lawrence), Pain over knee joint, Morning stiffness (above 3 months)

Exclusion Criteria: Osteoporosis, Recent Fracture around knee joint, Metal Implant Fixation in knee & hipAny hip & knee musculoskeletal deformity.

3. Result

Results of the study were analysed in terms of pain relief indicated by decrease in NPRS scores, increase in range of motion of knee joint using IASTM and MFR, reduction in disability and increase in HAMSTRIND &IT BAND Flexibility which was measured using Universal goniometer.

Table shows Pre and post - NPRS data of Group A and also knee Range of Motion. The p value of both the outcome measures shows 0 that is it shows the significant difference in the result.

Table Group A					
		Mean	SD	T Value	P Value
NPRS	PRE	5.68	1.12	6.14	0
	POST	4.18	0.73		
KNEE FLE	PRE	113.4	14.25	- 8.18	0
	POST	131.59	6.61		
KNEE EXT	PRE	5.77	1.71	5.4	0
	POST	2.72	2.05		

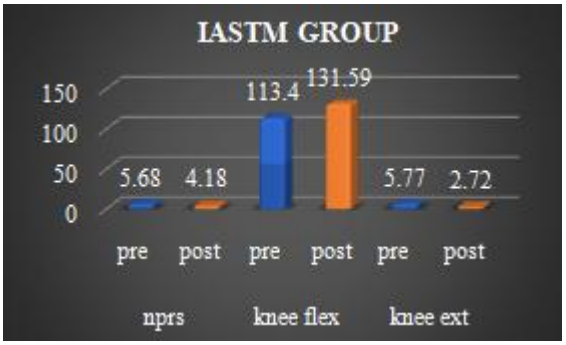
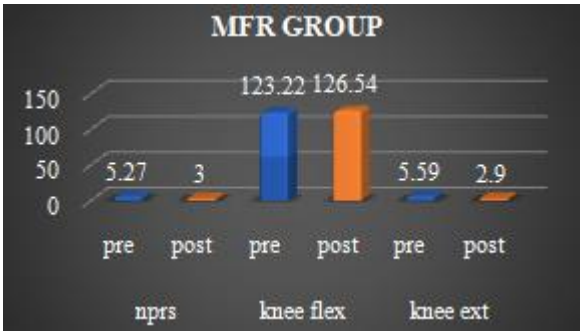


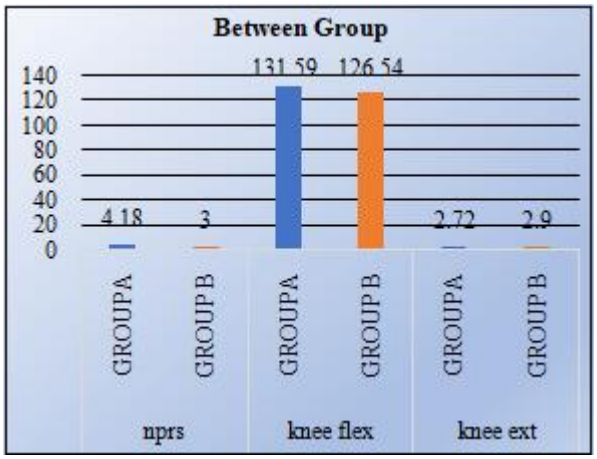
Table shows the pre and post - value of Group B in pain and Knee Range of Motion. P - value of the result is <0.0 which shows the significant result in the value.

MFR					
		Mean	SD	T Value	P Value
NPRS	Pre	5.27	1.03	8.58	0
	Post	3	0.87		
KNEE FLEX	Pre	123.22	8.22	- 6.05	0
	Post	126.54	7.55		
KNEE EXT	Pre	5.59	3.51	6.26	0
	Post	2.9	1.9		



Below given table shows the comparison of both the groups (Group A & Group B) where post data of NPRS AND Knee Range of Motion was taken. P- value of the result shows

Unpaired T Test					
		Mean	SD	T Value	P Value
NPRS	Group A	4.18	0.73	4.86	0
	Group B	3	0.87		
KNEE FLEX	Group A	131.59	6.61	2.35	0.23
	Group B	126.54	7.55		
KNEE EXT	Group A	2.72	2.05	- 0.305	0.76
	Group B	2.9	1.9		



MFR (HAMSTRING)			
Pre		Post	
Present	Absent	Present	Absent
22	0	9	12
MFR (IT BAND)			
Pre		Post	
Present	Absent	Present	Absent
22	0	8	13

Table shows the flexibility of Group A for the hamstring and IT band after giving the MFR technique. It showed a significant difference in the flexibility of the hamstring and IT band muscles.

Table shows the flexibility of Group B for the hamstring and It band after giving IASTM technique. It showed a significant difference in the flexibility of the hamstring and IT Band.

IASTM (IT BAND)			
Pre		Post	
Present	Absent	Present	Absent
22	0	4	18

4. Discussion

In this study 44 patients with knee OA 26 females and 19 males were included who had complain of knee pain, joint stiffness and difficulty in daily living activities, in this study Random sampling method was done and patients were allocated into 2 different groups that is Group who were given MFR + conventional therapy and Group 2 with IASTM + conventional therapy were given, 22 patients in each group was selected. The change was observed in this study are noteworthy, within the group comparison showed that there was significant reduction in pain Functional disability in both of group. The muscle flexibility showed statistically significant difference in knee flexion and extension in both of group. While knee flexion and extension showed statistically significant more improvement in IASTM group. It should be noted that control group produced more good outcome, but additional of IASTM improved the outcomes substantially. The between group comparison of the present study shows that all the. Outcome variable i. e Pain, Knee range of motion and functional disability showed statistically significant improvement in Group one as Group two.

The result of studies assessing the effect of IASTM on IT Band & Hamstring flexibility in OA knee patients all showed decrease of pain and disability (NPRS & ROM). In particularly, et all. Compared the effect of IASTM along with conventional therapy and both of treatment were effective in reducing Pain. Utilizing IASTM technique as an initial means of used in improvement in muscle flexibility and to reduced. IASTM &MFR have beneficial effect for decreasing pain, increasing knee range of motion and improving IT band & hamstring muscle flexibility in patients with OA of Knee along with conventional exercise protocol. However, IASTM have more beneficial effect compare to MFR On decreasing pain, increasing knee range of motion and improving IT band & hamstring muscle flexibility in patients with OA of Knee

5. Conclusion

The present study concludes that both IASTM &MFR have beneficial effect for decreasing pain, increasing knee range of motion and improving IT band & hamstring muscle flexibility in patients with OA of Knee along with conventional exercise protocol. However, IASTM have more beneficial effect compare to MFR On decreasing pain, increasing knee range of motion and improving IT band & hamstring muscle flexibility in patients with OA of Knee.

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