**TO COMPARE THE EFFECT OF MYOFASCIAL RELEASE TECHNIQUE VERSUS KINESIO TAPPING ALONG WITH QUADRICEPS AND HAMSTRING STRENGTHENING IN KNEE OSTEOARTHRITIS GRADE -2 PATIENTS**

Margi Jeetesh Sharma , Dr. Arushi Tandon

**ABSTRACT**

**BACKGROUND**: Osteoarthritis (OA) is the leading cause of musculoskeletal pain and disability .Knee Osteoarthritis (KOA) is a heterogeneous pathology characterized by a complex and multifactorial properties. Knee OA is the greatest contributor to impairment of functional ability of OA patients. The disability can be extensive, including mobility limitation, difficulty with activities of daily living, and social isolation. The principal contributors to disability are believed to include pain, reduced range of joint movement, and muscle weakness. Conventional physiotherapy treatment such as strengthening and stretching are widely practiced by physiotherapist on patient with knee Osteoarthritis.However, usage of myofascial release technique is quite rare among therapist to treat knee Osteoarthritis and there is lack of evidence supporting the importance of Myofascial release in treating knee Osteoarthritis. e beneficial effects of exercise in the treatment of Osteoarthritis (OA) of the knee have been verified in several studies. Kinesio taping (KT) has been popularized due to its reducing local pressure and increasing circulation, resulting in decreased pain.

**AIMS AND OBJECTIVE**: TO COMPARE THE EFFECTS OF MYOFASCIAL RELEASE TECHNIQUE VERSUS KINESIO TAPPING ALONG WITH QUADRICEPS AND HAMSTRING STRENGTHENING IN KNEE OSTEOARTHRITIS GRADE -2 PATIENTS.

**METHODOLOGY**: Comparative study design. 30 patients with knee osteoarthritis grade 2 were selected according to the inclusion and exclusion criteria and were divided into 2 groups – group A: Myofascial Release technique along with quadriceps and hamstring strengthening andGroup B: Kinesio tapping along with quadriceps and hamstring strengthening. Study duration is 45 min per day, 5 days a week, total 12 weeks.

**CONCLUSION**: This study concludes that concludes that MFR is more beneficial as compared to Kinesio tapping for the patients with grade -2 OA knee, whereas Kinesio tapping can be used for short term pain relief.

**KEY WORDS**: Myofascial release -Kinesio tapping – Strengthening – Functional movement pattern – pain relief - Grade -2 Knee Osteoarthritis patients

**INTRODUCTION** Osteoarthritis (OA) is primarily a cartilage disease as it is characterized by the progressive loss of hyaline articular cartilage. Ultimately, the articular cartilage degenerates with fibrillation, fissures, ulceration, and full thickness loss of the joint surface. Common sites developing OA include the knee, hand, hip, spine and foot. Among these, the knee is the most commonly affected joint and the pain is generally related to joint use and it is relieved by rest. As OA progresses, pain may become more persistent and can appear also at rest and during the night. Occasional early morning stiffness is believed to be related to inflammation. Patients with knee OA describe stiffness as difficulty in rising from a chair and slowness of movements.

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Knee OA is usually managed in primary care with analgesics and non-pharmacological options, such as exercise. Dynamic stability is provided by the muscles that surround the knee joint. The quadriceps femoris muscle is the principal muscle involved in knee extension. The principal muscles involved in knee flexion are the hamstring muscle group.

Exercise has been shown to improve function, strength, walking speed, and self-efficacy and to reduce pain and the risk of other chronic conditions . Progression of the disease is also prevented or retarded by physical and occupational therapy and exercise programs .

MFR therapy involves specifically guided low load , long duration mechanical force to manipulate the myofascial complex , intended to restore optimal length , decrease pain and improve function . MFR utilizes the manual traction and prolonged stretching of the fascia and muscle to break down the adhesions, thus help to decrease the pain and increase the flexibility and thereby increase ROM.

Therapeutic tool utilized by the rehabilitation specialists in all programs (pediatric, geriatric, orthopedic, neurological, oncology and others) is Kinesio Taping and levels of care (acute care, inpatient rehabilitation, outpatient, home care and Day Rehab). The modality used in pain management , soft tissue injury, tissues and joints malalignment, oedema, and more. Kinesio Taping Method utilizes four types of Kinesio Tex Tapes, each one with specific properties designed to use on fragile skin, sensitive skin or applied with higher tensions.

A goniometer is an instrument that measures the available range of motion at a joint. The art and science of measuring the joint ranges in each plane of the joint are called goniometry. To measure the range of motion physical therapists most commonly use a goniometer.

Resistance Training: - Resistance training is a form of exercise intended to increase muscular strength and endurance. It involves exercising muscles using some form of resistance. This resistance could be weights, bands, or even your own bodyweight working against gravity.

When doing resistance training—which is sometimes called strength training or weight training—you can focus on specific results, such as joint stability, muscular endurance, increased muscle size, strength, and power

The Knee Injury and Osteoarthritis Outcome Score (KOOS) is a knee-specific instrument, developed to assess the patients' opinion about their knee and associated problems. The KOOS evaluates both short-term and long-term consequences of knee injury. It holds 42 items in 5 separately scored subscales; Pain, other Symptoms, Function in daily living (ADL), Function in Sport and Recreation (Sport/Rec), and knee-related Quality of Life (QOL).It is an extension of the WOMAC Osteoarthritis Index [[1]](https://www.physio-pedia.com/Knee_Injury_and_Osteoarthritis_Outcome_Score#cite_note-Roos-1).The Knee injury and Osteoarthritis Outcome Score (KOOS) is self-administered. The KOOS proved reliable, responsive to surgery and physical therapy, and valid for patients undergoing anterior cruciate ligament reconstruction. The KOOS meets basic criteria of outcome measures and can be used to evaluate the course of knee injury and treatment outcomes

**METHODOLOGY**

A comparative study in which 30 Patient diagnosed by Grade -2 Knee OA both male and female are included by randomized sampling and divided into 2 groups: - GROUP A and GROUP B patients were treated 5 times per week {1 session – 45 minutes per day} for 12 week

Inclusion criteria:-

* Aged 45 – 70 years
* Clinical diagnosed patient of knee osteoarthritis grade 2 with complains of knee pain for 3-6 months
* Complains like early morning stiffness , crepitus bony tenderness

Exclusion criteria:-

* Inability to give informed consent
* Terminal or mental illness ( i.e. Schizophrenia or multiple personality disorder )
* Neurological Condition – Stroke , Multiple Sclerosis , Parkinson’s , MND , Muscular Dystrophy
* Inflammatory joint disease including RA , gout or calcium pyrophosphate deposition disease ( CPPD) and dementia .
* Participants with sleep apnea previously diagnosed by a physician .

PROCEDURE

After collecting the written consent form the patients selected by inclusion and exclusion criteria will be divided into two groups – Group A and Group B.

X-ray report was collected and assessment of each patient was taken.

**Group A** will be treated with strengthening exercises for quadriceps and hamstring along with MFR technique on hamstring muscle and quadriceps muscle according to patient clinal presentation and posture.

Myofascial Release Technique:

1. Patient position- prone lying comfortably.

2. Their thigh area was exposed and applied with lubricant oil or powder.

3. The procedure begun with stroking using fist of hand over hamstring muscle from proximal to distal of the hamstring.

4. Patient was informed not to do any kind of contraction that might affect the outcome of this research.

Before exercise patient will be provided with hot water fomentation

Exercise include

1. quad set -10 rep with 10 sec hold
2. SLR -10 rep with 10 sec hold
3. short arc quad -10 rep with 10 sec hold
4. long arc quad-10 rep with 10 sec hold
5. SLR – leg rotated laterally -10 rep with 10 sec hold
6. bridging -10 rep with 10 sec hold
7. wall squat -10 rep with 10 sec hold
8. Hamstring sets-10 rep with 10 sec hold
9. hamstring curls -10 rep with 10 sec hold
10. seated theraband hamstring strength-10 rep with 10 sec hold
11. prone knee flexion with theraband -10 rep with 10 sec hold
12. side leg raise and prone leg raise - 10 rep with 10 sec hold

**Group B** will be treated with strengthening exercises for quadriceps and hamstring along with kinesio tapping technique on the hamstring muscle and quadriceps muscle according to patient clinical presentation and posture : Y shaped taping along with same exercise as group A .

Initially 10 repetition of each exercise with weight for 2-3 days.

Progressively increasing the repetition and sets of each exercise

Progressively increasing the weight and level of resistance of theraband.

**RESULTS**

Both groups demonstrated significant changes in KOOS scale parameter and knee ROM from week one to week twelve.

However, GROUP A showed a significant improvement are:-

ROM knee flex pre-test mean SD from 102.8±9.2 to post-test 115.9±9.9.

KOOS pain pre-test mean SD from 36.8±13.6 to post-test 70.6±12.2.

KOOS symptom pre-test mean SD from 37.0±11.6 to post-test 76.9±15.8

KOOS ADL pre-test mean SD from 36.4±7.6 to post-test 81.5±7.8

KOOS SPORTS/REC pre-test mean SD from 46.2±9.4 to post-test 83.6±8.2

KOOS QOL pre-test mean SD from 38.2±8.2to post-test 82.4±10.6

And GROUP B significant improvements are:-

ROM knee flex pre-test mean SD from 103.5±8.9 to post-test 113.7±9.7.

KOOS pain pre-test mean SD from 39.0±12.7 to post-test 66.6±14.3.

KOOS symptom pre-test mean SD from 34.6±11.7to post-test 70.2±11.3

KOOS ADL pre-test mean SD from 33.7±8.03 to post-test 64.7±13.8

KOOS SPORTS/REC pre-test mean SD from 48.3±11.7 to post-test 74.6±8.2

KOOS QOL pre-test mean SD from 40.9±10.2to post-test 67.7±12.5.

This data analysis shows that group A is more significant as compare to group B.

This study proven that MFR is more beneficial as compare to Kinesio tapping for the patient with grade 2 osteoarthritis. Because MFR break adhesions and trigger point of muscle and fascia, also improve local blood circulation and healing, reduce inflammation with promote lymphatic drainage**.** The reduction in pain after the Myofascial release treatment is might be because of the inhibitory effect on an organ which is the Golgi tendon. This is because of the reduction of the neuronal motor discharges, and it starts to relax the musculotendinous unit by slowly altering the Pacinian body and also reset its resting length. This modification and reset assist in relaxing the musculotendinous tension and reduce the discernment of pain.[54]

This study reveals that Kinesio tape can be use for short term pain relief and easy mobility for the patient with OA arthritis grade II.

As we done conventional therapeutic exercise for both group including strengthening of knee and hip joint muscle in different positions give beneficial result to patient and improve there static and dynamic stability post intervention .So for further treatment of OA patients we can give combined therapy includes exercise, MFR, as well as kinesio tapping together for the early recovery of patients