

The Efficacy of Manual Therapy Techniques in the Management of Osteoarthritis: A Systematic Review and Meta-analysis

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Abstract:

Osteoarthritis, also known as degenerative joint disease, is a common musculoskeletal disability condition characterized by pain, stiffness, and limited range of motion in the knee joint. Non pharmacological and nonsurgical treatment is preferred for the management of knee osteoarthritis (OA) .Physiotherapy interventions, including manual therapy techniques, are frequently used in the management of Osteoarthritis. This systematic review aims to evaluate the efficacy of manual therapy techniques in reducing pain, improving range of motion, and enhancing functional outcomes in patients with Osteoarthritis.

Keywords: Osteoarthritis, Electrotherapy, Exercise, Physiotherapy, Goniometer (ROM)

Introduction:

Osteoarthritis is a debilitating condition that affects a significant portion of the population, particularly old-age individuals. Physiotherapy plays a crucial role in the conservative management of Osteoarthritis, with manual therapy techniques being widely employed. However, the effectiveness of these techniques remains uncertain due to the lack of comprehensive evidence. This systematic review aims to address this gap by synthesizing the available literature on the topic.

Osteoarthritis, also known as “degenerative joint disease” **wear & tear** arthritis, is a condition characterized by pain and stiffness in the knee joint. It typically occurs due to obesity, joint injury, genetics, repetitive stress, hormonal factor. This case study aims to explore the presentation, diagnosis, treatment, and outcomes of a patient with Osteoarthritis.

Stages of osteoarthritis:

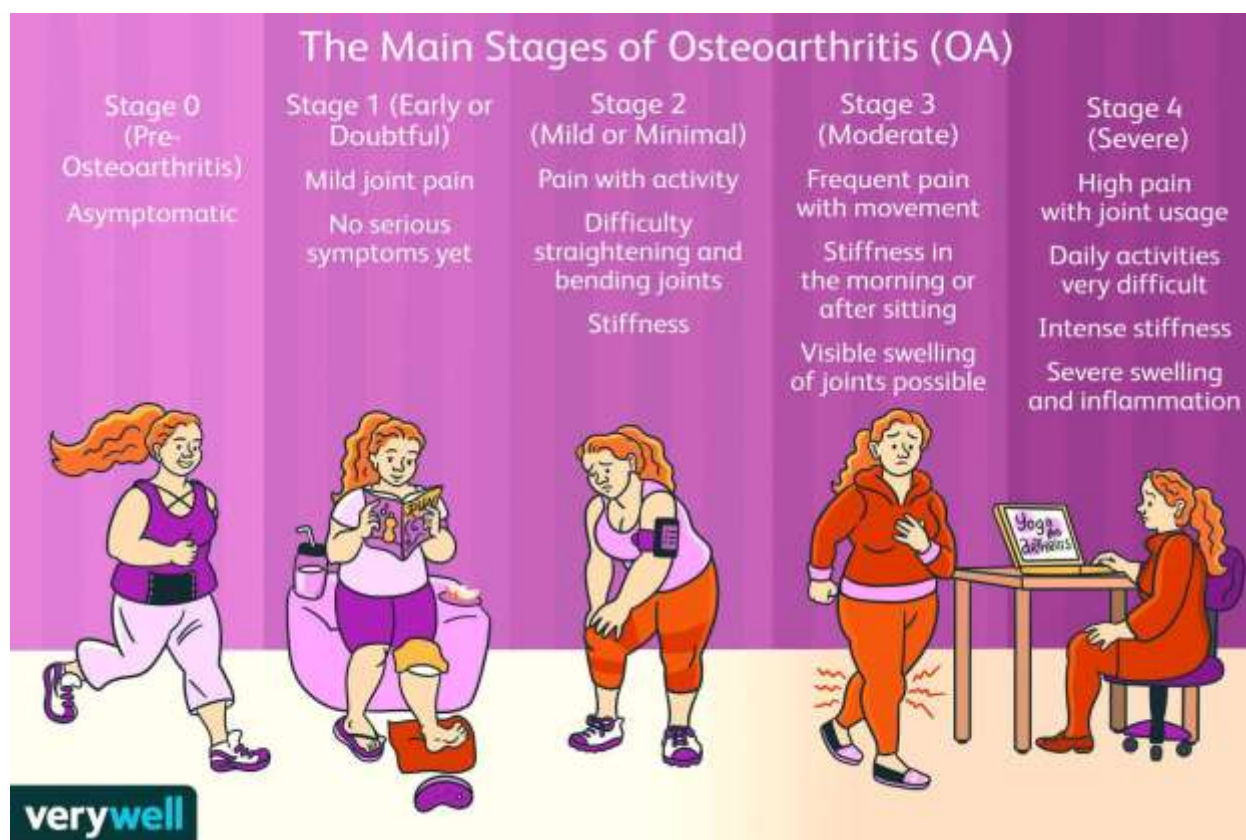


Fig:1 stage of osteoarthritis

Aim of work:

The patient, a 55-year-old female, presented with a complaint of severe pain and limited range of motion in his left leg around the medial collateral ligament. He reported no specific injury or trauma but mentioned that the symptoms had gradually worsened over the past six months. The pain was constant, especially at morning stiffness & also she is not unable to walk at the, and affected his ability to perform daily activities such as walking, reaching overhead, and sleeping comfortably.

Most patients are initially prescribed a course of physiotherapy. The aim behind most regimens is to prevent further reduction in range of motion and eventually to increase the range of motion in the affected left knee. Manual therapy and stretching are two of the most commonly used techniques. Despite the near universal use of physiotherapy as a first line treatment for osteoarthritis there is very little high quality evidence to support its use. Cochrane reviews have demonstrated that the current literature base shows that physiotherapy alone has little to no benefit as compared to control groups. There are a number of adjuncts that are often used with physiotherapy including extracorporeal short wave therapy, electromagnetic stimulation, and the use of lasers, none of which have been subjected to investigation with randomized controlled studies.

Diagnosis-

After a thorough medical history, physical examination, joint fluid analysis, complete blood count, CRP, ASO, RA-factor the patient was diagnosed with osteoarthritis. X-rays were taken to rule out any underlying structural abnormalities or fractures. The imaging results were normal, confirming the diagnosis of osteoarthritis.

NOTE- It's important to that there is no definitive test for osteoarthritis; the diagnosis is typically made based on a combination of clinical findings, symptoms & imaging results.

Physical Examination-



Fig: 2 Examination of the knee joint

Investigation-

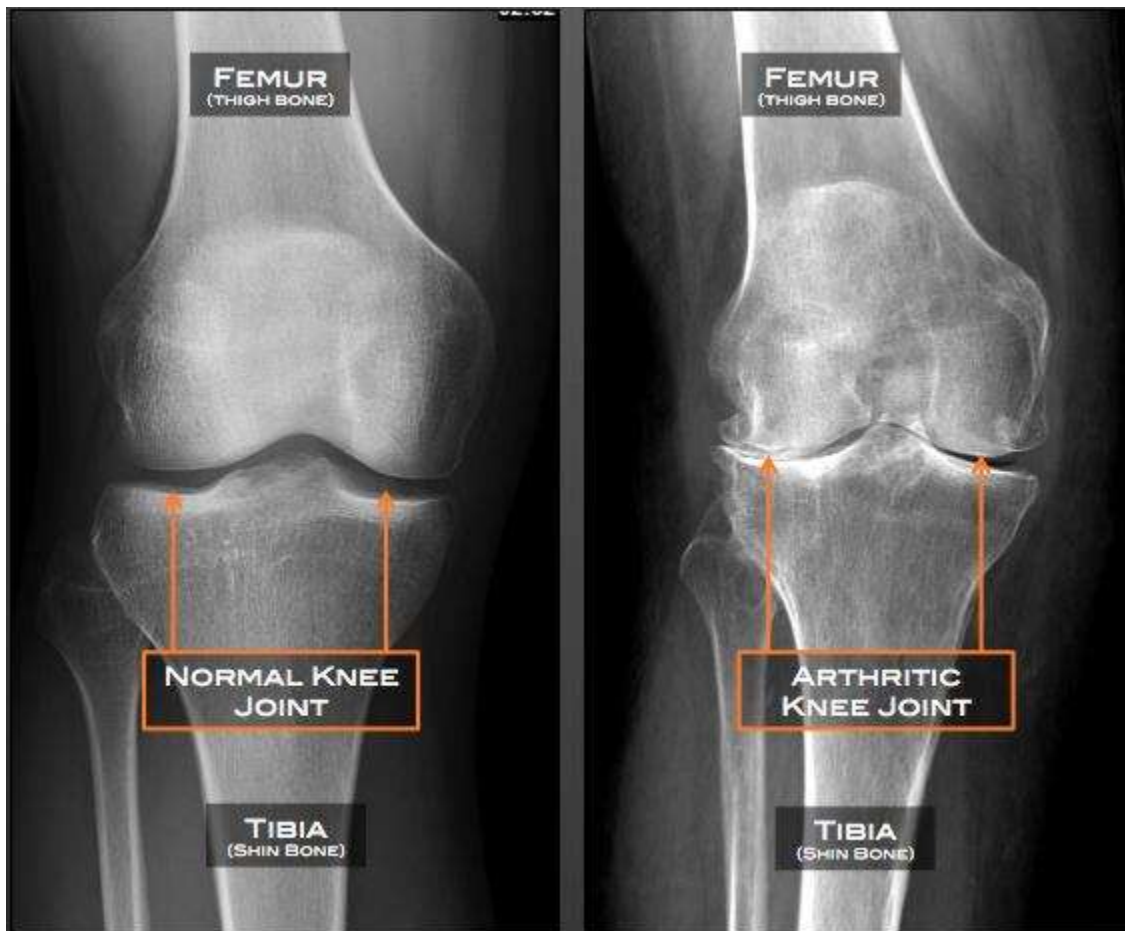


Fig: 3 (X-ray knee joint)



Fig: 4 (shows left knee AP, Lateral view of osteoarthritis)

Treatment-

Physiotherapy treatment for osteoarthritis typically involves a combination of exercises, manual therapy, and pain management techniques. The goal of physiotherapy is to improve the range of motion and reduce pain in the knee joint.

Physiotherapy treatment of osteoarthritis involves a combination of therapeutic exercises, manual therapy techniques, and education to help manage pain, improve joint function, and enhance overall quality of life. Here are some common physiotherapy interventions for osteoarthritis:

1. Exercise: Physiotherapists prescribe specific exercises to strengthen the muscles around the affected joint, improve flexibility, and enhance joint stability. These may include range of motion exercises, strengthening exercises, aerobic exercises, and aquatic therapy.



2. Manual therapy: Techniques such as joint mobilization and soft tissue mobilization are used to improve joint mobility, reduce pain, and increase flexibility. Manual therapy can also help to break down scar tissue and adhesions that may have formed in the joint.

3. Pain management: Physiotherapists may use various pain management techniques, such as heat or cold therapy, ultrasound, electrical stimulation, or transcutaneous electrical nerve stimulation (TENS) to alleviate pain and reduce inflammation.



4. Assistive devices: Physiotherapists may recommend the use of assistive devices, such as braces, splints, or walking aids, to reduce joint stress and improve mobility.



5. Education and lifestyle modifications: Physiotherapists provide education on joint protection techniques, proper body mechanics, and lifestyle modifications to manage osteoarthritis symptoms. They may also provide guidance on weight management, nutrition, and activity modification.

6. Gait training: For individuals with osteoarthritis in weight-bearing joints, such as hips or knees, physiotherapists may provide gait training to improve walking patterns and reduce joint stress during daily activities.



7. Home exercise program: Physiotherapists often prescribe a customized home exercise program that patients can perform independently to maintain the gains achieved during therapy sessions.

Note-

It is important to note that the specific treatment plan will vary depending on the individual's symptoms, joint involvement, and overall health. A physiotherapist will assess the individual's condition and develop a personalized treatment plan to address their specific needs.

Results-

Data from eligible studies will be extracted and analyzed using appropriate statistical methods. A meta-analysis will be conducted if feasible, and the quality of evidence will be assessed using the Cochrane risk of bias tool. Subgroup analyses will be performed based on the type and duration of manual therapy techniques, as well as the stage of osteoarthritis.

Discussion-

This systematic review and meta-analysis will provide an up-to-date and comprehensive synthesis of the available evidence on the efficacy of manual therapy techniques in the management of frozen shoulder. The findings will help guide physiotherapists in selecting appropriate interventions for patients with osteoarthritis, ultimately improving treatment outcomes and patient satisfaction.

Conclusion-

By evaluating the efficacy of manual therapy techniques in reducing pain, improving range of motion, and enhancing functional outcomes in patients with osteoarthritis, this systematic review and meta-analysis will contribute to the existing body of knowledge in physiotherapy.

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