IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

# A LITERATURE REVIEW TO FIND THE EFFECTIVNESS OF INSTRUMENTED ASSISTED SOFT TISSUE MOBILIZATION IN MUSCULOSKELETAL PAIN

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## Abstract

In current time, musculoskeletal pain is one of the major leading conditions which cause disability in all the age group. musculoskeletal pain occurs due to overuse or repetitive use of particular muscles or repetitive strain injuries. It is taken as common medical and socioeconomic issue all over the world because it affects muscles, bones, tendon ligament and also nerves. IASTM is a form of non-invasive manual therapy involving rigid instrument of various shapes and materials to locate and treat soft tissue disorder. Several IASTM tools and technique are available to provide soft tissue mobilizations and improve pain and range of motions.

There is article which suggests IASTM may be effective tools and technique for musculoskeletal pain but strong evidence yet to be discussed. the purpose of this review article is to find out more strong evidence to support the effectiveness of IASTM in musculoskeletal pain

**Keywords-**

IASTM, Musculoskeletal pain, connective tissue, Neuromobility, James Cyrix cross-friction massage.

**Abbreviation-**

WHO: World Health Organization, IASTM: Instrument Assisted Soft Tissue Mobilization,

FAKTR: Functional and Kinetic Treatment with Rehab.

**Objective**- to find out the strong evidence which support the effectiveness of IASTM on musculoskeletal pain intensity and improve functional task.

**Results-**

The above article shows that IASTM [ Graston and Ergon] technique is more effective when it is applied alone or combined with exercises in treatment of musculoskeletal pain.

**Conclusions-**

After a detail review of literature, it has been observed that IASTM is a technique used to treat musculoskeletal pain, remove scar tissue that formed in the soft tissue. IASTM is effective technique to treat musculoskeletal condition and to reduce pain intensity.

## INTRODUCTION

Musculoskeletal pain is defined as pain that affects bones, muscles, ligaments, tendons, and even nerves. The pain associated with musculoskeletal disorder is a common medical and socioeconomic problem worldwide[1].According to world health organization [WHO], musculoskeletal pain affects 20 to 33 percent of the world's population[1,2.] Musculoskeletal pain can be acute, meaning it is sudden and severe or the pain maybe chronic [long lasting]. There are various types of musculoskeletal pain such as bone pain, pain due to injuries such as bone fracture or the musculoskeletal injuries, less commonly a tumor may cause pain, muscle spasm. Sprains, strains and overuse injuries can lead to tendon or ligamentous pain[1]

IASTM is a technique that involves using instruments to address musculoskeletal pathology related impairments and help heal soft tissues[3]. soft tissues manipulation technique includes several types ranging from classical to cross- friction massage and muscle energy, passive or active release and myofascial release technique. These techniques are performed with therapists' hand or with specialize equipment called iastm[4].

IASTM is a popular treatment for myofascial restriction based upon the rational introduced by James- Cyriax . IASTM is applied using specially designed instrument such as GRASTON, functional and kinetic treatment and rehab [FAKTR][5]. Different types of materials such as wood, ceramics, plastic, stone and stainless steel are used to make different brand of tools[6,10].

## MECHANISM

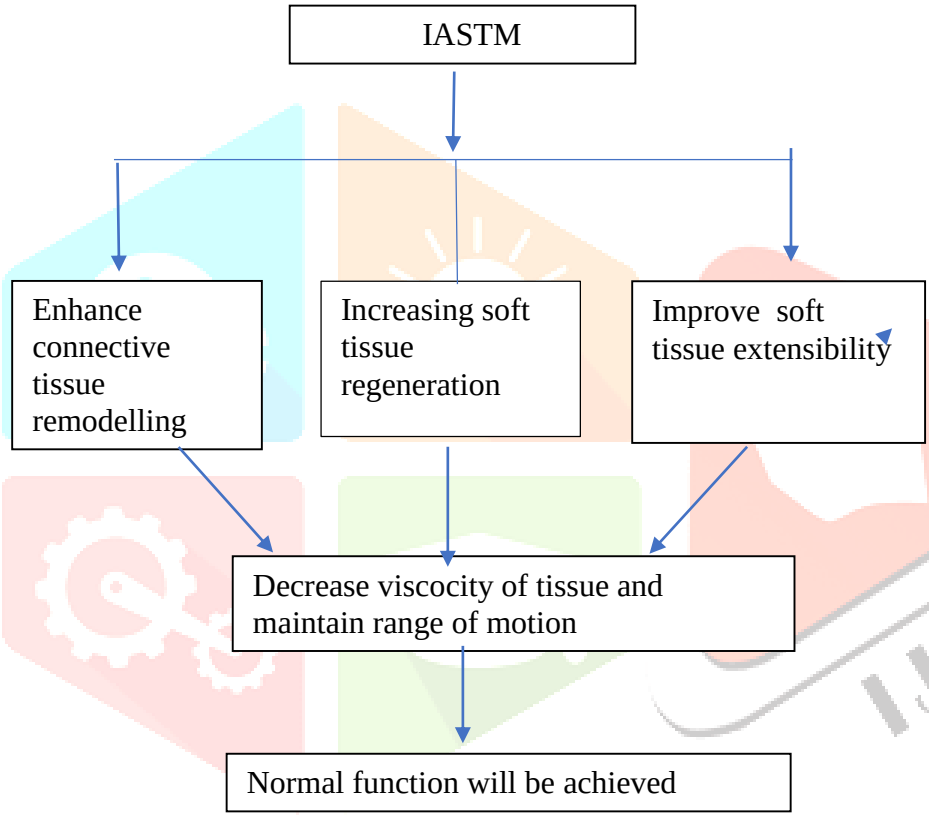
On a daily basis 87 percent of clinicians are using manual therapy[6,11]. IASTM is designed to both treatment of soft tissues injuries and promotion of recovery[7]. IASTM intervention included gentle and firm strokes that applied compression and shear stress to produce a pulling force in the engaged tissues around the edges of the instruments[8].

When a stimulation is applied to the injured soft tissue using an instrument, the activity and the number of fibroblasts increases, along with fibronectin, through localized inflammation, which then facilitates the synthesis and realignments of collagen is one of the proteins that makes up the extracellular matrix[3]. when an IASTM is applied to skin, it increased blood flow to facilitate the supply of blood and oxygen to the soft tissues.

The goal of IASTM is to remove scar tissue and promote a return to normal function following soft tissue regeneration. When the scar tissue is removed by IASTM, functional normalization around soft tissue can be achieved[3]. Favorable effects on the organization of underlying collagen substructure have been reported, which may result in stronger, stiffer ligaments with an increased ability to absorb mechanical energy [9].

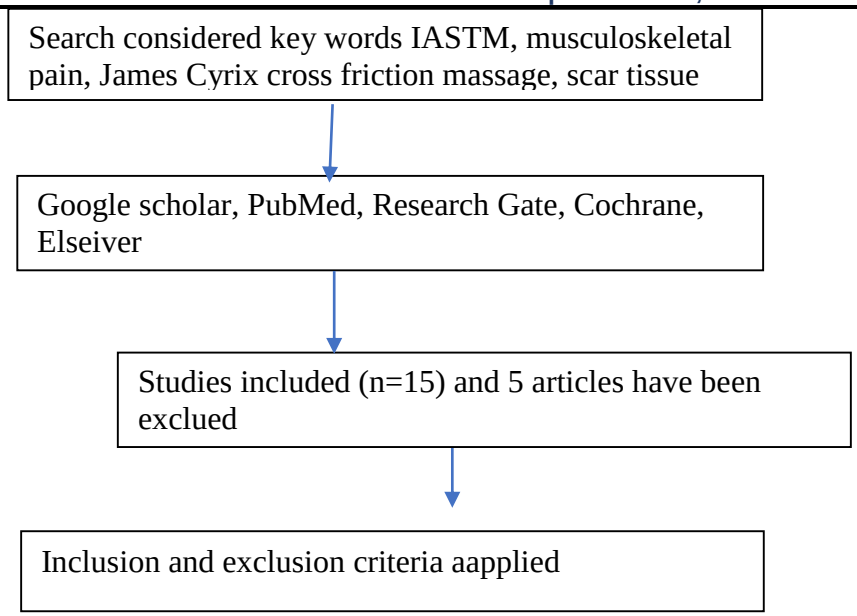
The Graaston technique contains a protocol for treatment that contain several components. That is Examination, Warmup, IASTM treatment, Post treatment stretching, Strengthening and Ice[5].

Objective for the study will be recognize pain and discomfort which is due to musculoskeletal pain and then find out the review on the study on effect of IASTM and also compare the effect of tapping in various pain syndromes.




## METHODOLOGY

Online search engines used to collect journals were Google scholar, PubMed, Research Gate, Cochrane, Elsevier. Full text articles were assessed for inclusion and exclusion criteria(n=20). Inclusion and exclusion criteria applied and then this study included n=15 participant.




REVIEW OF LITERATURE;

| SLN | Author | Journal and year | Title | TYPE OF STUDY | RESULT |
|---|---|---|---|---|---|
| 1 | Tahir Mahmood | 2021 and journal of Pakistan medical association[1] | Instrument assisted soft tissue mobilization an emerging trend for soft tissue dysfunction | Review Article | IASTM is effective in treatment for soft tissues dysfunction |
| 2 | Salah N *et al* | 2021 and pain ther[2] | Management of musculoskeletal pain an update with emphasis on chronic musculoskeletal pain. | Review article. | IASTM has effectiveness in reducing pain. |
| 3 | Jooyoung Kim *et al* | 2017 and Journal of exercise rehabilitation[3]. | Therapeutic effectiveness of IASTM for soft tissue injury mechanisms and practical application. | Review article | IASTM is found effective to improve soft tissue function and range of motion and reduce pain. |
| 4 | Konstantinos fousekis *et al* | 2020 and the journal of physical therapy science[4]. | Effect of IASTM mobilization at three different application angles on hamstring surface thermal response. | Original Article | IASTM ergon technique can increase hamstring flexibility by increasing and maintain hamstring skin temperature. |

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| 5 | Jeong Hoon lee *etal* | 2016 and the journal of physical therapy science[5] | The effect of graston technique on the pain and range of motion in patient with chronic low back pain. | Review Article. | IASTM was significant in reducing pain and improving range of motion. |
| 6 | Mallika bitra[1].S G sudhan[2] | Dec 2019 and journal of clinical and diagnostic research[6] | Instrument assisted soft tissue mobilization in the management of musculoskeletal pain | Review article | IASTM can help the scar tissue mobilization, reduced pain n inflammation in musculoskeletal injuries |
| 7 | Jooyoung kim[1] Joohyung Lee[2] | 2019 and journal of men's health[7] | Effect of instrument assisted soft tissue mobilization on exercise induced muscle damage and fibrotic factor | Randomized control trial | Application of IASTM accelerate muscles strength recovery and effective for reducing scar tissues. |
| 8 | Naoki Ikeda *et al* | 2019 and journal of American college of sports medicine[8]. | The effect of instrument assisted soft tissue mobilization on musculoskeletal properties. | Case report | IASTM is effective to improve ankle joint dorsiflexion range of motion and stiffness and reduced pain. |
| 9 | Arif Karmali *et al* | 2019 journal of contemporary chiropractic[9]. | The efficacy of IASTM for musculoskeletal pain | Systemic review | IASTM was found effective for reducing pain in musculoskeletal disorder. |
| 10 | Dr Ashwini bulbuli | 2017 and journal of medical science and clinical research[10]. | Effect of instrument assisted soft tissue mobilization using M2Tblade on acute heel pain. | Pilot study | Reduction in heel pain intensity according to pre and post foot function index score |
| 11 | Terry Loghman i.M[1] Sammie Bane[2] | 2016 and journal of novel physiotherapies[11] | Instrument assisted soft tissue manipulation evidence for its emerging efficacy. | Review Article | IASTM is effective in musculoskeletal condition as it effects as a mechano therapeutic modality |

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| 12 | Joseph Paul coviello *et al* | 2017 and the international journal of sports physical therapy[12]. | Short term effects of instrument assisted soft tissue mobilization on pain free range of motion in weightlifter with subacromial pain syndrome. | Case report | IASTM is effective in improving pain free flexion range of motion,decrease disability and reduced pain. |
| 13 | Corrie my burgh *et al* | 2018 and Journal of rehabilitation medicine Clinical communication [13] | Effect of instrument assisted soft tissue mobilization on ankle range of motion and triceps sure pressure pain sensitivity | Blinded and intervention study | IASTM is effective for reducing pain and improving range of motion. |
| 14 | Scott W. Cheatha m *et a*l | 2019 and the international journal of sports physical therapy[14]. | IASTM A commentary on clinical practice guidelines for rehabilitation professionals. | Original article | IASTM will be effective for treatment in musculoskeletal pain. |
| 15 | Russell T. Baker *et al* | 2015 and the international journal of sports physical therapy[15]. | A Novel approach for the reversal of chronic apparent hamstring tightness. | Case study. | IASTM has an impact for improving hamstring flexibility and improve range of motion |

CONCLUSION

After a detail review of literature, it has been observed that IASTM is a technique used to treat musculoskeletal pain, and remove scar tissue that formed in the soft tissue. it helps in the healing process by activating fibroblasts. It is a simple technique and requires a very short period for a session. IASTM is an effective technique to treat musculoskeletal condition, to reduce pain intensity and improve function.

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