



Instrument Assisted Soft Tissue Mobilization

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Objectives:

1. The learner will be able to Identify IASTM and the common rationale behind why IASTM is used by clinicians.
2. The learner will effectively be able to analyze the hypothetical physiology behind IASTM treatment for injury, pain and ROM.
3. The learner will efficiently examine and compare the evidence behind IASTM.

IASTM: What is it?

Manual therapy treatment technique that enables therapists to use **instruments** to detect and alter tissue properties.¹



IASTM: Basic Claims²

“Graston Technique® (GT) is a unique, evidence-based form of instrument-assisted soft tissue mobilization that enables clinicians to effectively and efficiently address **soft tissue lesions and fascial restrictions** resulting in improved patient outcomes.”

“Smart Tools were developed to assist in effective **treatment of adhesions and scarring** brought on by surgeries, injuries, and overuse of muscles.”

“Astym® treatment non-invasively activates a regenerative response throughout dysfunctional soft tissues by **inducing dysfunctional capillary exudation, local fibroblast activation, macrophage mediated phagocytosis** (microdebridement) and release of growth factors that result in additional fibroblast recruitment.”

“HawkGrips are precision-engineered instruments designed to **detect and treat restrictions/scar tissue.**”

Scarring
& Fibrosis

Fascial
Tension &
Densification

Neural
Tension

Muscle
Shortening

Neurologic
Restriction

Trigger
Points

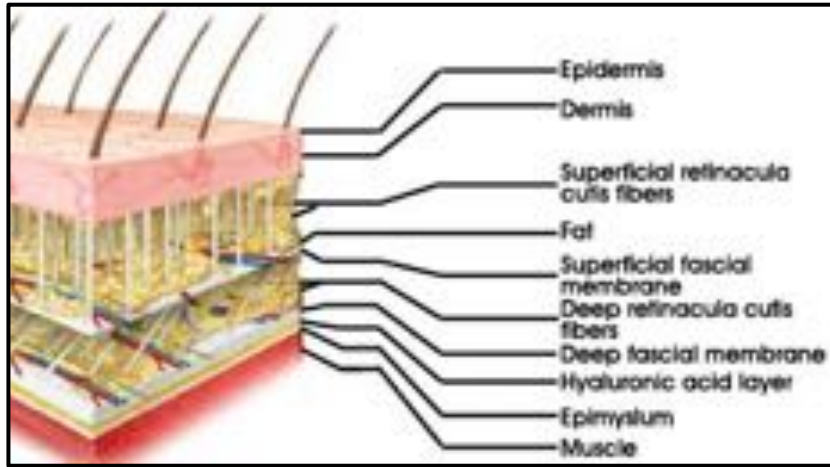
IASTM: Top Claims²

Treatment for:

1. Injury
2. Pain
3. ROM

IASTM: Treatment for Injury^{3,4}

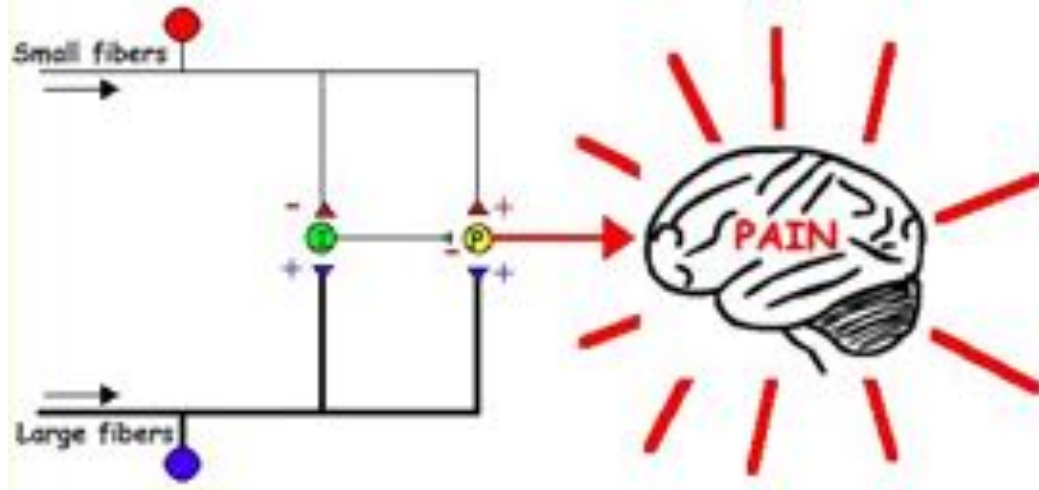
Microtrauma



- Local inflammatory response.
- Reabsorption of inappropriate fibrosis/excessive scar tissue.
- Cascade of healing activities: remodeling of affected soft tissue structures.

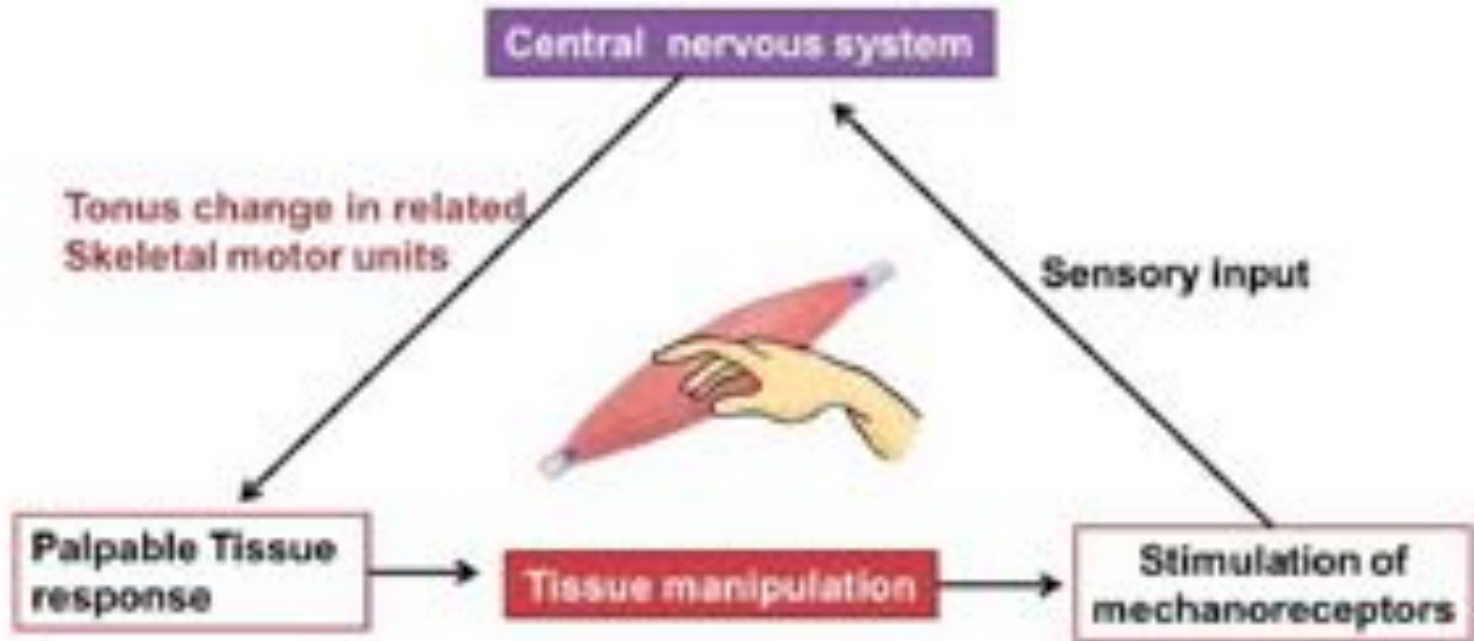
IASTM: Treatment for Pain^{3,5}

Gait Control Theory



Decreased contact area + more force = Increased compressive stress

IASTM: Treatment for ROM^{3,4}



IASTM: Supporting Evidence⁶⁻⁸

- “Astym treatment vs. eccentric exercise for lateral elbow **tendinopathy**: a randomized controlled clinical trial.”
- “The effect of Graston technique on the **pain** and range of motion in patients with chronic low back pain.”
- “Acute effects of instrument assisted soft tissue mobilization for improving posterior shoulder **range of motion** in collegiate baseball players.”

Therapeutic effectiveness of instrument-assisted soft tissue mobilization for soft tissue injury: mechanisms and practical application

IASTM was found to improve soft tissue function and ROM in acute or chronic sports injuries to soft tissues, while also reducing pain.

IASTM: Ideal Clinical Research

Randomized, controlled trial with three groups:

1. A control group that received advice and education,
2. Experimental group that received a multi-modal physical therapy program including IASTM.
3. Comparison group that received a multi-modal physical therapy program including only manual STM.

IASTM: Ideal Clinical Research

*A Pilot Study Comparing Two Manual Therapy Interventions
for Carpal Tunnel Syndrome.*

→ IASTM vs. STM ←

Conclusion: “The clinical improvements were not different between the 2 manual therapy techniques.”

Spinal manipulative therapy, Graston technique® and placebo for non-specific thoracic spine pain: a randomised controlled trial

Amy L. Crothers, Simon D. French, Jeff J. Hebert and Bruce F. Walker 

Chiropractic & Manual Therapies 2016 24:16

This study indicates that there is no difference in outcome at any time point for pain or disability when comparing SMT, Graston Technique® or sham therapy for thoracic spine pain, however all groups improved with time.

IASTM: Systematic review ³

“The current evidence of RCTs does not support the efficacy of IASTM for treating certain musculoskeletal pathologies.”

Author	Type of Study	Subjects	Technique	Pathology or Region	Outcome Measures	Intervention	Results
Blanchette and Noemand ¹⁰	RCT	N=27 (12M, 15F) IASTM (N=15) Control (N=12)	Graston®	Lateral Epicondylitis	1. VAS 2. Pain rated tennis elbow evaluation 3. Grip strength (painfree)	IASTM: received IASTM twice a week for 3 weeks. Dosage time not reported. Control: received education about the pathology, computer ergonomics, and stretching flexors and the extensors muscles of the wrist (hold 30 seconds, 6 times a day), ice and generic anti-inflammatory medications.	Post-intervention and at a 2-month follow-up. Both groups showed improvements in pain-free grip strength, VAS, and Patient-Rated Tennis Elbow Evaluation.
Burke et al ¹¹	RCT	N=22 (3M, 19F) IASTM (N=12) STM (N=10)	Graston®	Carpel Tunnel Syndrome	1. Sensory and motor nerve conduction evaluations of the median nerve 2. VAS 3. Katz hand diagrams of symptom severity and functional status 4. Self-reported ratings of symptom severity and functional status 5. Sensory and motor functions of the hand by physical examination.	Both the IASTM and STM groups received the same treatment protocol: 2x/week for first 4 weeks and 1x/week for 2 weeks. Home program included stretching and strengthening the upper extremity. IASTM and STM dosage times not reported. Note: subjects were instructed to refrain from use of wrist splints and anti-inflammatory medications during the intervention period.	Post-intervention and at a 3-month follow-up, both groups showed improvement in all outcomes measures.
Gulick ¹²	RCT	<i>Phase I</i> (N=27, 13M, 14F) <i>Phase II</i> (N=22, 5M, 15F) IASTM (N=14) Control (N=8)	Graston®	Myofascial Trigger points in upper back and	1. Pressure sensitivity with algometer	<i>Phase I:</i> Two MTiPS were identified. One treated with IASTM for maximum of 5 minutes the other was control. 6 total treatments (2x/week for 3 weeks) <i>Phase II:</i> One MTiPS identified in IASTM and control group. IASTM group received a maximum treatment time of 5 minutes 2x/week for 3 weeks. Control group did not receive treatment.	Post-intervention, both the IASTM and control groups showed improvement in the outcome measures interventions. No secondary follow-up was reported.
Laudner et al ¹³	RCT	N=35M IASTM (N=17) Control (N=18)	Graston®	Posterior Shoulder Muscles	1. Glenohumeral horizontal abduction Glenohumeral internal rotation	IASTM: One treatment to the posterior shoulder musculature for a total treatment time of 40 seconds. Control: No treatment.	Post-intervention, the IASTM group demonstrated greater acute improvements in ROM when compared to the control group. No secondary follow-up was reported.
Markovic ¹⁴	RCT	N=20M IASTM (N=10) Foam Roll (N=10)	Fascial Abrasion Technique®	Quadriceps and Hamstrings	1. Passive straight leg raise test 2. Sapiro passive knee flexion test	IASTM: One treatment to the quadriceps and hamstring for a total of 2 minutes to each region. Foam Rolling: One session to the quadriceps and hamstrings for 2x1 minute per muscle group. Note: Both groups performed a warm-up before each session. They cycled for 5 minutes and did dynamic movements (2-5 sets each leg) of walking lunges, walking knee to chest, side squats, deep squats, and standing toe-touches. Static stretching of quadriceps and hamstring muscles was also done (2 sets of 30 seconds each).	Post intervention, both groups showed improvement in joint ROM At the 24-hour follow-up, the IASTM group preserved the most joint ROM.

REVIEW ARTICLE (META-ANALYSIS)

The Effectiveness of Instrument-Assisted Soft Tissue Mobilization in Athletes, Participants Without Extremity or Spinal Conditions, and Individuals with Upper Extremity, Lower Extremity, and Spinal Conditions: A Systematic Review

This systematic review provides the most updated evidence on the effectiveness of IASTM. The current evidence does not support the use of IASTM to improve pain, function, or range of motion in individuals without extremity or spinal conditions or those with varied pathologies.

IASTM: In Conclusion

“IASTM is an effective treatment intervention for reducing pain and improving function.”³

Is it a better treatment option than what already exists?

IASTM: Alternative Reasons for Use ¹²

Work-Related Activities Associated with Injury in Occupational and Physical Therapists

Manual Therapy = Greatest proportion of injuries reported (27%)

70 % of injuries located in hands and wrists.

71% of OP PT reported manual therapy injuries.

IASTM: In Conclusion

- According to research, IASTM is not significantly more effective than other forms of manual therapy.
- IASTM is deemed effective and could be beneficial as an alternative to STM.
- Future studies are needed to assess the different IASTM tools and IASTM protocols.

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