Instrument assisted soft tissue mobilization (IASTM) utilizing Dynamic Extension Technique

Taking your soft tissue treatments to the next level with Dynamic Extension (Reciprocal Inhibition) and IASTM

www.AdvancedMassageEducation.com
Instrument assisted soft tissue mobilization (IASTM) utilizing Dynamic Extension Technique

INTRODUCTION

Instrument Assisted Soft Tissue Mobilization (IASTM) is a treatment which enables clinicians to efficiently locate and treat individuals diagnosed with soft tissue dysfunction. The purpose of which is to break down scar tissue and adhesions that are causing multi-layered soft tissue restriction and adversely affecting the dynamic function of the underlying muscles, tendons, fascia and ligaments.

IASTM is performed with ergonomically designed instruments that detect and treat fascial restrictions, encourage rapid localization and effectively treat areas exhibiting soft tissue fibrosis, chronic inflammation, or degeneration.

HISTORY

The technique of IASTM itself is said to be a modern evolution from Traditional Asian Medicine called Gua Sha. Gua meaning “to rub” and Sha describes the term for the little red dots left on the skin (or petechiae).

However Gua Sha was not used to treat musculoskeletal conditions but was traditionally applied along meridians to move the bad chi out through the skin also to combat pain, common cold, heatstroke, and respiratory problems. [1]

A Gua Sha tool is a specialized smooth tool that is traditionally made of jade or horn, but can also be made of plastic, ceramic or a well-worn coin. They come in an array of sizes and shapes. The simplest gua sha tool is actually a ceramic Chinese soup spoon which fits well in the hand, has both wide and narrow ends.
CURRENT GUA SHA RESEARCH

According to recent research many western clinicians are not as concerned with the effectiveness of traditional Gua Sha practices as they are with the safety and sanitary aspects of this treatment. [2] The Sha or rash left behind is the escape of blood into the tissues from ruptured blood vessels. This also applies to the subcutaneous discoloration (bruise) resulting from seepage of blood within the contused tissue.

This rash is similar to subcutaneous hematomas that can be subdivided by size. By definition, ecchymoses are 1 centimeter in size or larger, and are therefore larger than petechiae (less than 2 millimeters in diameter) or purpura (2 millimeters to 1 centimeter in diameter). Ecchymoses also have a more diffuse border than other purpura. It was also reported that this rash subsequently faded within 2 to 7 days after the gua sha treatment.

It is also noted that if intended for reuse, the instruments must undergo a high level of disinfection. [3]
Dr Arya Nielsen is a practitioner, teacher, author and researcher and is considered the Western authority on Gua sha. She has an academic research doctorate and a faculty appointment at a New York teaching hospital, Beth Israel Medical Center where she sees patients and directs the Acupuncture Fellowship for Inpatient Care through the Department of Integrative Medicine. Dr. Nielsen teaches internationally on topics related to East Asian medicine and Integrative medicine.

Dr. Nielsen has published numerous Western peer reviewed journals. There are case reports of gua sha for migraine, post herpetic neuralgia, and breast distension/mastitis as well as randomized controlled trials reporting gua sha has benefits in treating neck pain, neck and back pain.\[4\]

In the last decade, research has begun to clarify how gua sha works. Gua sha’s therapeutic petechiae represents blood cells that have extravasated in the capillary bed, and measure as a significant increase in surface microperfusion. As this blood is reabsorbed, the breakdown of hemoglobin upregulates HO-1, CO, biliverdin and bilirubin, which are anti-inflammatory and cytoprotective.

Studies show the anti-inflammatory effect of gua sha has a therapeutic impact in inflammatory conditions, such as active chronic hepatitis, where liver inflammation indicates organ breakdown that over time can lead to premature death. The physiology of HO-1 may also explain gua sha’s anti-inflammatory effect in other responsive clinical conditions, such as fever, cough, asthma, bronchitis, emphysema, mastitis, gastritis, musculoskeletal and other painful conditions presenting as neck pain, back pain, migraine, postherpetic neuralgia and heart rate variability.\[5\]
The bulk of Chinese peer reviewed journals and articles are large case series as well as randomized controlled trials. However, studies done in China are still subject to skepticism by some clinicians unless repeated in the West. This important data hopefully will be studied in the US but is slow in coming.

**GRASTON TECHNIQUE**

The Graston Technique is a manual soft tissue technique invented by an athlete named David Graston. He was unable to fully recover from a knee injury he sustained while water skiing. In his downtime, he began thinking about the normal manual massage style therapy in regards to his own knowledge of tools.

He decided to design a set of tools to assist with his rehab. The concept of cross-friction massage, developed by orthopedic surgeon Dr. James Cyriax, was the primary concept behind the development of the soft tissue treatment protocol for the Graston Technique.

The Graston Technique is basically an instrument-assisted, soft tissue mobilization therapy. It is beneficial in breaking up fascial restrictions, scar tissue adhesions, increased blood flow and detecting areas of chronic inflammation and/or fibrosis. [6]

There are more than 15,000 clinicians worldwide who practice the Graston Technique. These clinicians are chiropractors, physical therapists, athletic trainers, and other trainers. Use of the technique is common in amateur sports as well as professional sports.

Practitioners must be licensed by the parent corporation (Therapy Care Resources Inc.) in order to use the Graston Technique trademark or the patented stainless steel instruments.
The promoters of the Graston Technique claim that the instruments are much like tuning forks as they reportedly resonate in the clinician's hands allowing the clinician to isolate adhesions and restrictions, and treat them very precisely. The promoters also claim that the metal surface of the instruments do not compress the tissues, as do the fat pads of the finger, so that deeper restrictions can be accessed and treated.

The instruments may be purchased for $1,795.00*

6-Piece Instrument Set
When Pre-Purchased with Registration for M1-Basic Training *6-Piece set purchased after M1 training: $2,295

Training Fees (Effective July 1, 2014)

M1–Basic Training, 12 hours - $650

M2–Advanced Training, 14 hours - $695

GT Emollient with Vitamin E 3 4-oz. Jars - $36

"GT has been an integral and largely beneficial application in our care and treatment of the acute and chronic conditions that affect professional baseball players. Our efforts at edema reduction in acute ankle sprains and contusions (hit by pitch, foul tips) have been more successful as a direct result of implementing GT in our protocols. We have seen tremendous outcome results in chronic conditions such as tendinosis, scar tissue impediments and fascial pain syndromes. Our athletes often present to the athletic training room requesting GT."

— Lonnie Soloff, ATC, PT
Head Athletic Trainer, Cleveland Indians
According to Harriet Hall, MD also known as The SkepDoc, a retired family physician who writes about pseudoscience and questionable medical practices.

Graston is often recommended for a kind of knee tendonitis, IT band syndrome. Even if iliotibial band syndrome really is caused by fibrosis/adhesions — which is not a safe assumption — it seems like Graston technique might be just as likely to make it worse as better!

The Graston website offers us only one scientific article from a 12-year-old peer-reviewed study, and it turns out to be a controlled study of 20 rats. They gave half of them an Achilles tendon “injury” by injecting collagenase and treated half of those with Graston Technique. They found microscopic evidence of increased fibroblast proliferation in those treated with the Graston Technique instruments, and there was also an improvement in the animals’ gait.

It really all boils down to a handful of mice pro, a handful of mice con, one human pilot study showing no advantage over manual mobilization, and a lot of testimonials. Would you be willing to try a new pharmaceutical treatment on the basis of nothing but one favorable mouse study out of two, and one pilot study? Would you agree to let someone deliberately injure you on such flimsy evidence? I would be very happy if the Graston Technique proves useful, but for the time being it must be considered experimental.

Patients usually receive two treatments per week.

Improvement is noticed after the 3rd or 4th treatment, but therapists recommend 8-12 treatments for the very best results.

The cost is a more expensive than a regular physical therapy session, but the Graston sessions are much shorter; each lasting only about 5-to-8 minutes.
Care Instructions and Possible Side Effects from the Graston People

Dedication to a prescribed home exercise program is essential to the success of your treatment. Stretching and strengthening exercises are given to you in order to maintain the release of scar tissue, restrictions and adhesions.

**Bruising**
Since the involved tissue binds with normal tissue, it develops a blood supply. As restrictions are released from healthy tissue, bruising may occur, especially in treating chronic conditions. Some areas of the body that have a very rich blood supply may produce more bruising. Bruising can be controlled with ice.

**Soreness**
An increase in soreness and discomfort is not uncommon after the first treatment session and is most often a positive sign that restrictions have been released. Soreness is usually minimized after 48 to 72 hours and can be controlled with ice and stretching.

**Water Intake**
It is recommended that you drink six to eight 8-oz. glasses of water per day. Adequate hydration is important to promote proper healing.

**Can anyone obtain the instruments?** *Only clinicians who have been trained and accredited in the Graston Technique® Basic course are qualified to obtain the Graston Technique® instruments and apply the technique to treat patients.*

![Graston Instruments]

**6-Piece Set**
$2,295 Regular Price

**3-Piece Starter Set**
$1,195 Regular Price
GT training is multi-disciplinary and is available to the following licensed professionals:

*Physical Therapist/Physiotherapist/Physical Therapist Assistants who work under/with GT-trained Physical Therapists.*

*Occupational Therapist/Occupational Therapist Assistants who work under/with GT-trained Occupational Therapists*

*Chiropractor/Certified Athletic Trainer (Licensed Athletic Trainers in some states)*

*Medical Physician/Dentist/Osteopath/Podiatrist*

*Selected Canadian Registered Massage Therapists*

*Board Certified and Licensed Naturopaths*

*Board Certified and Licensed Acupuncturists*

**ASTYM**

ASTYM uses the same concept as Graston and both are under the category of instrument assisted soft tissue mobilization. They just use different tools. ASTYM seminars won't allow chiropractors to take them, but Graston allows for both.

ASTYM uses plastic instruments while the Graston tools are stainless steel. Graston is said to be superior because of their weight and comfort to the patient.
That said, most people still experience some discomfort during treatment with either, but it is said to be more tolerable with the Graston compared to the plastic ones.

Graston recommends a treatment process...tissue warm-up, followed by treatment, then exercise or exercise during treatment, then ice. Because most of the research on both Graston and ASTYM has been done at Ball State Memorial Hospital, I assume the process for them is the same. In short, the major differences to the patient are probably more comfort with Graston tools and for the provider, the weight of the Graston tools make them easier on the hands. Otherwise it is probably identical and the results in the end will probably be the same.

**ASTYM compared to IASTM**

Astym treatment is very different than the other IASTM approaches (Graston). IASTM is often described as tooled cross friction massage. Generally speaking, IASTM is largely unresearched and varies widely in application and results, but its main focus is always the direct, mechanical breaking up of tissue. IASTM also has a significant side effect profile. While in certain situations IASTM can have some effectiveness, it is often unpredictable depending on the practitioner or the patient. The primary practitioners of IASTM are chiropractors, athletic trainers and massage therapists. The references to IASTM are usually contained in the chiropractic publications or magazines.

*Astym methods, goals, application and indications are quite different than the IASTMs. Being focused on regeneration rather than on the mechanical breaking apart of tissue, Astym therapy is assumed safer, more effective and treats a much broader range of conditions.*
How Much Does an Astym Certification Cost?

According to astym.com, “Astym treatment sets the standard for soft tissue therapy. It regenerates healthy soft tissues (muscles, tendons, etc.), and removes unwanted scar tissue that may be causing pain or movement restrictions.

Only a certified therapist can perform this type of treatment. If you are looking into the option of learning and performing the Astym system, then you have to get an Astym Certification in order to qualify.

The cost of getting an Astym Certification may vary due to several factors. For instance, the state or location, duration of the certification (how often it must be renewed), and options chosen may directly or indirectly have an impact on the cost.

Most programs to earn the Astym certification are going to be less than a week and should not cost any more than $1,000 to $3,000. The certification is broken down into two parts which include the upper and lower extremities. Some schools will include both while others will charge separately.

According to dmu.edu, their Astym Certification Course runs around $995 to $5,000 per clinician. The certification course costs $995 per clinician over time and per site or $5,000 per clinician one-time as a one-time fee.

Instruments can cost $300 to $500 per set while a subscription fee costs around $700 to $2,000. These are part of the Astym certification costs with most colleges.
Other IASTM Instruments

Adhesion Breakers Instrument Assisted Soft Tissue Mobilization Tools

Complete Adhesion Breakers Instrument Assisted Soft Tissue Mobilization Instruments set (5 tools) - **$625.00** Includes Adhesion Breakers Instrument Assisted Soft Tissue Mobilization Instruments (IASTM) soft carrying case. *IASTM Instruments Made of 316 Stainless Steel *No certification courses required.

![Image of IASTM instruments](image)


Adhesion Breakers started with the goal of providing the professional industry with precision tools used in the treatment of soft tissue injuries, at an affordable price. We understand there are many other options with regards to instrument assisted soft tissue mobilization tools (IASTM) however Adhesion Breakers Instrument Assisted Soft Tissue Mobilization Tools (IASTM) feel our product quality and price are the best in the industry.
Zuka Tools

Increase revenue, get referrals, no certification/ licensing fees, prevent hand/wrist injuries while performing IASTM or Myofascial Release therapies!

IASTM/Myofascial Release treatment is non-invasive and uses uniquely-designed stainless-steel instrument to break down scar tissue and fascial restriction. Zuka Tool instruments are best-in-class made of a variety of size instruments for precise treatments for different size individuals. Additionally, the instruments are made of medical-grade stainless steel with a flat surface for easy cleaning and to prevent the transfer of bacteria.

This Zuka Tool Set comes with a hard carry case and a desk pad for $599.00
Hawk Grips

The target audience in training courses is restricted to Athletic Trainers, Physical Therapists, Physical Therapist Assistants, Occupational Therapists, Occupational Therapy Assistants, and Massage Therapists. The level of learning for PT/PTA is Intermediate level. Attendees of the course should have a basic background in the concepts of soft-tissue mobilization, such as massage.

Gold set is: $2,895.00 (pictured above). Introductory Set with 3 tools is $1095.00
M2T-Blade

Enhance Your Practice and Get Better Results With Your Patients By Using Soft Tissue Instruments..

Here’s a breakdown of why the M2T-Blade Tool Is Leading Soft Tissue Industry...

The Only Double Beveled (35° and 55°) Tool With Easy Grip Handle On The Market!

8 Distinct Treatment Points with A Total Of 14 Edges All In 1 Tool!

Designed For Both Left and Right Handed Practitioners

Competitors Tools Can Cost $995-$2,095, M2T Practitioners Get Access To M2T-Blade For Free When Signing Up For Our $499.00 Course

100% Surgical Grade Stainless Steel.

$299.00
EDGE Mobility Tool

The EDGE is THE ORIGINAL 300 grade stainless steel tool for assisted soft tissue manipulation from Buffalo, NY. I have always been interested in other big name approaches but did not want to pay the prices.

I am an orthopedic manual therapist who teaches in an accredited OMPT fellowship program.

I developed my own tool with different edges for different areas of the body. It is lightweight, has a comfortable grip, and even certified practitioners of the "other" techniques have used it and found it more comfortable and easier to use. It is several tools in one! The EDGE is used by professionals all over the world! Some organizations that use the EDGE: NFL, NBA, MLB, NHL, division 1 schools, smaller colleges, high school ATCs and of in the capable hands of PTs, DCs, MTs, and ATCs. $114.95

Also available in plastic. The price - just $49.99

Weight is extremely light, about 1 oz compared to 8 oz for the steel tool. Plastic not as durable as stainless steel, not quite as sensitive for detecting superficial adhesions.
RockBlades

RockBlades are comprised of two precision-engineered and manufactured soft-tissue instruments: a “Mallet” and a “Mullet,” RockRub emollient, sanitizing wipes, and a quick-start guide to form a complete IASTM system.

Every detail of RockBlades – each edge, angle and contour – was carefully cultivated and refined over the course of two years.

$300.00 the training course is $200 if you already have purchased RockBlades.

One tool is crafted from polished, surgical-grade stainless steel, and the other is thermo-plastic polyamide with an Integrated Bottle Opener.
And finally

Many therapists believe that manual therapy can affect the finer delicate fascial tissues, and this is what improves movement and reduces pain and stiffness. Well, if the forces applied with manual therapy can do this, then so can the forces that are encountered with normal movement, or just pressing up against something or someone. A recent paper by Vardiman in 2014 highlights this really well. \[7\]

His study looked at the use of instrument assisted massage (IASTM) on the calf muscles. IASTM, the latest therapy craze/fad that involves scrapping metal utensils up and down patient’s bodies. Not that any of the tools I have mentioned earlier are not worth good money, why not try everyday household items?

The latest instrument assisted massage tools

Tipped points for releasing all those hard to reach nooks and crannies

Ergonomically designed handles for comfort grip

Long smooth edges for easy fascial gliding

Curved applicator for increased patient comfort

For full information on cost, product availability and training courses please contact @cynicalPT (US) and @adammeakins (UK)

Anyway, Vardiman’s study found that after a session of IASTM to the calf muscles there was absolutely NO change in ANY of the physical parameters they measured. No change in anything measured including muscle biopsy biochemical tests. OK, so it could be argued that it was only after a single session of manual therapy, and maybe some changes would appear after more treatments.
Dynamic Extension Technique

One of my favorite techniques is a movement I like to call “Dynamic Extension Technique”. It is commonly known as a massage concept called “pin-and-stretch”, which is applying pressure to a muscle as you elongate it.

In addition, Sherrington’s law of reciprocal inhibition (Sherrington, 1907) states that a hypertonic antagonist muscle may be reflexively inhibiting their agonist. Therefore, in the presence of tight and/or short antagonistic muscles, restoring normal muscle tone and/or length must first be addressed before attempting to strengthen a weakened or inhibited muscle.

As a muscle contracts the motor nerve has been activated which is commonly known as a concentric contraction. The opposite or antagonist muscle relaxes known as an eccentric contraction.

If pressure is applied to a muscle while it is in the relaxed or lengthened eccentric state it will encourage the elongation of muscle tissue with less discomfort for the patient.
One of the obstacles I face with treating people is lack of awareness of their bodies. With athletes, many train way past their pain threshold. In fact, the average person may suppress nagging discomfort with their day to day lives.

As this warning signal is suppressed more and more the person may not be aware of a nagging irritation that has grown into a full blown injury until the therapist addresses it on the treatment table.

An added benefit of Dynamic Extension Technique is by having the person actively contract the opposite muscle of the one being treated will encourage awareness of this dysfunctional area and help to restore proper function and range of motion.

Position thumbs at the base of the neck.
Have the person elevate into extension

While the person contracts the muscles in front the head lowers
The therapist strokes up the neck.
Dynamic Extension Technique for the Rest of the Body

The guide I use for treating the body with Dynamic Extension Technique is to determine the action of the target muscle (agonist) I will be working with.

Next is to find the opposite muscle, determine the action of this antagonist.

Demonstrate to the person how to shorten or contract the antagonist muscle.

Have the person practice shortening the antagonist muscle a few times slowly.

As the person continues to shorten the antagonist muscle, slowly glide with or against the grain of the target muscle. With each stroke as the tissue releases more pressure should be able to be tolerated.

Actions of commonly treated muscles

Muscles of the Shoulder and Arm

Upper Trapezius-elevates scapula (agonist)

Lower Trapezius-depresses scapula (antagonist)

Latissimus Dorsi-extends, adducts, and medically rotates the arm (agonist)

Anterior Deltoid-flexes arm (antagonist)

Middle Deltoid-abducts arm (antagonist)

Infraspinatus-laterally rotates, abducts arm (antagonist)

Levator Scapula-elevates scapula, bends neck laterally (agonist)

Lower Trapezius-depresses scapula (antagonist)

Levator Scapula on other side-bends neck laterally (antagonist)
Pectoralis Major-adduct, medially rotate arm (agonist)
Middle Deltoid-abducts arm (antagonist)
Infraspinatus-laterally rotates, abducts arm (antagonist)

Rhomboids-assists in adduction of arm/shoulder (agonist)
Middle Deltoid-abducts arm (antagonist)
Pectoralis Major-adduct, medially rotate arm (antagonist)

Infraspinatus-laterally rotates, abducts arm (agonist)
Pectoralis Major-adduct, medially rotate arm (antagonist)

Biceps Brachii-flexes, supinates forearm (agonist)
Triceps Brachii-extends forearm (antagonist)
Pronator Teres-pronates forearm (antagonist)

Muscles of the Forearm and Hand
Palmaris Longus/Flexors of the Forearm-flexes the hand (agonist)
Extensor Digitorum/Extensors of the Forearm-extends the hand (antagonist)

Abductor Pollicis Longus/Brevis-abducts thumb (agonist)
Adductor Pollicis-adducts thumb (antagonist)
Muscles of the Neck and Trunk

Suboccipital Muscles-extends the head (agonist)
Longus Colli/Capitis-flexes the head (antagonist)
Sternocleidomastoid-flexes the head (antagonist)

Erector Spinae-extension of the spine, one side only lateral flexes (agonist)
Rectus Abdominis-flexes the spine (antagonist)
Psoas Major-flexes the spine (antagonist)
Opposite Erector-lateral flexes (agonist)

Quadratus Lumborum-laterally flexes spine (agonist)
Opposite Quadratus Lumborum-laterally flexes spine (antagonist)

Muscles of the Hip and Thigh

Gluteus Maximus-extends thigh (agonist)
Psoas Major-flexes the spine (antagonist)
Tensor Fascia Latae-flexes thigh (antagonist)

Piriformis/lateral rotators-laterally rotates thigh (agonist)
Gluteus Medius/Minimus-rotates thigh medially (antagonist)
Adductor Longus/Brevis-assists in thigh medial rotation (antagonist)
Quadriceps-extends leg at knee joint (agonist)
Hamstrings-flexion of leg at knee joint (antagonist)
Adductor Magnus/Brevis/Longus-adducts thigh (agonist)
Gluteus Medius/Minimus-abducts thigh (antagonist)
Tensor Fascia Latae-abducts thigh (antagonist)

Muscles of the Leg and Foot
Gastrocnemius-plantar flexes foot (agonist)
Tibialis Anterior-dorsiflexes foot (antagonist)
Extensor Digitorum- dorsiflexes foot (antagonist)

Peroneus Longus/Brevis-everts foot (agonist)
Tibialis Anterior-inverts foot (antagonist)

Flexor Digitorum Longus, Brevis-flexes toes (agonist)
Extensor Digitorum Longus, Brevis -extends toes (antagonist)
Tibialis Anterior-dorsiflexes foot (antagonist)

Abductor Hallucis-abducts great toe (agonist)
Adductor Hallucis-adducts great toe (antagonist)
REFERENCES


