Evidence and applications of Instrument-assisted soft tissue mobilization in physical therapy

Shane McClinton, PT, DPT, OCS, FAAOMPT, CSCS
Objectives

• List the level of evidence for conditions in which instrument-assisted soft tissue mobilization (IASTM) has been utilized in the published literature.
• Describe the histological changes associated with IASTM in animal studies.
• Describe potential mechanisms by which IASTM can produce a treatment effect.
• Discuss applications of IASTM in clinical practice.
• Identify limitations of IASTM theory and applications.
  - Identify the clinical relevance of studies forming the basis for IASTM
Outline

• IASTM history, treatment theory, tools, & “brands”
• Histological basis of IASTM
• Review of published literature using IASTM as treatment
  – Hierarchy of evidence
  – Clinical relevance of treatment effects
  – Conditions studied
  – Treatment parameters
• Considerations & conclusions
IASTM – What is it?

• Manual therapy technique: soft-tissue biased
• Involves the use of an instrument or tool
IASTM?

Instrumented Reiki?  Instrumented chair massage?
Number of studies including IASTM

- Level 5: Mechanism-based
- Level 4: Case Reports
- Level 2: RCT
History

- Stone massage - ?
- Ancient Greek Roman baths
  - Strigils
- Gua sha – 1300
  - spooning, coining, scraping
- Iron Bar Bob – 1930
- Evolution of the modern American IASTM brands - 1989
IASTM “Brands’

- Astym® (Performance Dynamics, www.astym.com)
- Graston (Therapy Care Resources Inc., www.grastontechnique.com)
- Gua Sha
- SASTM (Carpal Therapy Inc. www.sastm.com)
## Clinician Listing

<table>
<thead>
<tr>
<th>ASTYM-Certified Clinicians at Des Moines University Clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Shane McClinton, DPT, OCS, FAAOMPT, CSCS</td>
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</table>
Battle of the “Brands” – What is IASTM

Astym®

IASTM has two main functions: to break up abnormal densities in tissue, such as scar tissue, and to reinitiate first-stage healing in the body. “When a body is injured, it sends blood, specifically the healing substances found in white blood cells, to the wounded area to begin laying down new collagen tissues and repairing the injury — building scar tissue,” says Dr. Heller. “IASTM is like a mild injury to the tissue which starts this process over again and helps the body to heal itself,” he adds. Tough scar tissue is essentially a “patch” at the site of an injury, helping it to heal, it is much less flexible than normal tissue. In the long run, scar tissue can cause restricted motion, which leads to pain when, for example, a patient with a sprained ankle tries to return to running. Typically, patients with soft-tissue injuries do not seek out a DC until the injuries have become chronic, usually months post-injury. By this point, the body has completed most of its self-healing process — scar tissue has built up, restricting motion — and it’s necessary for the DC to restart the curative process.

Graston

http://www.astym.com/Medical/About

IASTM Tools

• **Astym®** (Performance Dynamics, www.astym.com)
• **Fibroblaster** (Fibroblaster LLC, www.fibroblaster.com)
  – Jack
• **Fuzion** (Soft tissue therapy tools Inc., http://fuziontherapytools.com/)
• **Graston** (Therapy Care Resources Inc., www.grastontechnique.com)
• **Gua Sha**
• **SASTM** (Carpal Therapy Inc. www.sastm.com)
• **STARR Tool** (www.starrtool.com)
• **The Edge** (http://www.themanualtherapist.com/p/for-sale-is-300-grade-stainless-steel.html)
• **Hawk Grips** (http://hawkgrips.com/)
Examples of IASTM tools

http://guashatools.com*
www.sastm.com*
www.starrtool.com*
the-edgetool.com*

*with permissions
Aims of IASTM

• Assessment

• Treatment Effects
  – Biomechanical
  – Neurophysiological
  – Psychological
Proposed IASTM Treatment Effects

BioMechanical effects

- Stimulates healing and strengthens new collagen (www.astym.com)
- Break down scar tissue (including collagen cross links) and fascial restrictions (www.graston.com)
- Removal of blood and metabolic waste, promotes normal circulation and metabolic processes (Chiu et al. J Nurs Research. 2010.)
Observed responses to treatment

Bruising

petechiae
Petechiae

Biomechanical response to IASTM

• Rat tendon morphologic and functional changes resulting from soft tissue mobilization (Davidson et al. *Med Sci Sports Exerc.* 1997)


Rat tendon morphologic and functional changes resulting from soft tissue mobilization


Control (A)

Tendinitis (B)

Tendinitis + ASTM (C)

ASTM (D)

Outcomes assessed in all groups

3 min, q 4 days x 4

ASTM tool v1

3 weeks for healing

Tendinitis + ASTM (C)

ASTM (D)

- **Increased fibroblast proliferation with ASTM in rats**

<table>
<thead>
<tr>
<th>Group</th>
<th>Fibroblast count</th>
</tr>
</thead>
<tbody>
<tr>
<td>A  No injury + no ASTM</td>
<td>3±3</td>
</tr>
<tr>
<td>B  Injury + no ASTM</td>
<td>10±7*</td>
</tr>
<tr>
<td>C  Injury + ASTM</td>
<td>15±11*</td>
</tr>
<tr>
<td>D  No injury + ASTM</td>
<td>4±2</td>
</tr>
</tbody>
</table>

* Significant difference between injury + ASTM and all other groups....and injury + no ASTM and all other groups

- **Increased stride length/decreased stride frequency**
Fibroblast response to variation in soft tissue mobilization pressure (Gehlsen et al. Med Sci Sports Exerc. 1999)

ASTM = 3 strokes up, 3 down, q 4 days x 6

1 week after last rx: ~ 5-6 weeks post start of rx, 8-9 weeks after surgical injury

*Significantly different from group surgery only
†Significantly different from all other groups

Non-injured Control
Injury + no Rx
Injury + IACFM

1 week for healing

31: 1 min, 3x/wk x 3 wks
20: 1 min, 3x/wk x 10 wks

Outcomes assessed in all groups
• 31: 4 wks post surgical injury
• 20: 12 wks post surgical injury

9 sessions over 4 weeks

- Injured + no Rx
- Injury + IACFM
- Non-injured Control

30 sessions over 12 weeks

- Injury + no Rx
- Injury + IACFM
- Non-injured control

*Injured + IACFM greater than Injured + no Rx (P<.05)
Can you alter healing of my injured Achilles/MCL using IASTM?

Yes, studies show....

Does that mean you can alter healing of my Achilles/MCL injury?

- **Rx:** ASTYM (2x/wk x 7 weeks), ice stretching and a HEP
- **Outcomes**
  - ROM - improved in all directions
  - Pain – reduced from 6/10 to 0/10 with activity
  - NSAIDS – stopped use after treatment
  - MRI: baseline, 4 and 6 weeks post-treatment
    - Extensive scar formation – no change with treatment.
  - Photographs: before and after treatment
    - Scar maturation and reduced soft tissue
Proposed IASTM Treatment Effects

Neuropysiological effects

- Alteration of the pain experience - hypoalgesia
- Sympathetic response: blood flow, skin temperature
- Peripheral inflammatory mediators
- Muscle reflexogenic

Proposed IASTM Treatment Effects

Psychological effects

• Neuropsychological
  – Desire for pain relief
  – Pt. expectations (Bialosky et al. *BMC Musculoskelet Disord.* 2008)
  – Psychosocial context of treatment (context bias)
  – Fear, avoidance, catastrophization, kinesiophobia?

• Placebo effect (George and Robinson, *J Orthop Sports Phys Ther.* 2010)
  – Complex and dynamic
    • neurophysiological
    • neuropsychological
  – Study design with 3 arms (active treatment, placebo, control)
Contraindications

• Compromised tissue integrity (open wound, infection, tumor)
• Active implants (pacemaker, internal defibrillator, picc/pump lines)
• DVT
• Cervical carotid sinus
Precautions

- Bleeding disorders
- Inflammatory/irritable conditions (RA, lupus, Fibromyalgia, Complex Regional Pain Syndrome)
- Cancer
- Pregnancy
- Psychological state
Hierarchy of Evidence:

Number of IASTM studies *

<table>
<thead>
<tr>
<th>Level</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1:</td>
<td>0</td>
</tr>
<tr>
<td>Level 2:</td>
<td>8</td>
</tr>
<tr>
<td>Level 3:</td>
<td>0</td>
</tr>
<tr>
<td>Level 4:</td>
<td>31</td>
</tr>
<tr>
<td>Level 5:</td>
<td>5-?</td>
</tr>
</tbody>
</table>

*as of September 2013

www.cebm.net
## Studies per condition using IASTM

<table>
<thead>
<tr>
<th>Condition</th>
<th>Total</th>
<th>RCT/n=1</th>
<th>Case Series</th>
<th>Case Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lateral/Medial epicondylalgia</td>
<td>4</td>
<td>1</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Plantar heel pain/PTTD</td>
<td>4</td>
<td></td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Carpal tunnel syndrome</td>
<td>2</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Patellar tendinopathy/ TKA/ACLR</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Mastectomy/Breast engorgement</td>
<td>2</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Neck Pain</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Chronic ankle sprain/pain</td>
<td>3</td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Acute PTTD</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Costochondropathy/Pec strain</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>LBP</td>
<td>3</td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Trigger thumb/Dupuytren’s</td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Proximal HS tendinopathy</td>
<td>2</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Achilles tendinopathy/Calf pain</td>
<td>5</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Shoulder tendinopathy</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
Effectiveness of traditional Chinese Gua sha therapy in patients with chronic neck pain: a randomized controlled trial (Braun et al. *Pain Medicine*. 2011.)
Effectiveness of traditional Chinese Gua sha therapy in patients with chronic neck pain: a randomized controlled trial (Braun et al. *Pain Medicine*. 2011.)

<table>
<thead>
<tr>
<th></th>
<th>NDI</th>
<th>Mean pain with motion</th>
<th>Max pain with motion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gua sha</td>
<td>Thermal</td>
<td>Gua sha</td>
</tr>
<tr>
<td>Baseline</td>
<td>32.8</td>
<td>35.6</td>
<td>50.6</td>
</tr>
<tr>
<td>Post-Rx</td>
<td>-</td>
<td>-</td>
<td>29.2</td>
</tr>
<tr>
<td>7d post-Rx</td>
<td>21.8</td>
<td>32.8</td>
<td>24.7</td>
</tr>
<tr>
<td>Group diff baseline to 7d post-Rx</td>
<td>-8.5 (-13.6, -3.5)*</td>
<td>-23.5 (-34.5, -12.5)*</td>
<td>-19.1 (-31.7, -6.6)*</td>
</tr>
</tbody>
</table>

*\(p<.003\). NDI MCID = 10 points (Young et al. *Spine*. 2009). VAS MCID: If baseline 50-65 mm, then 19-27 mm. If baseline >65 mm, then 29-37 mm (Stauffer, *Inj J Inflam*. 2011).

- SF-36: Gua sha resulted in greater physical function by 4.2 pts (95% CI 7.1, 1.4) and social function by 6.5 (95% CI 12.4, 0.7). No difference in vitality, general health perception and mental health.
- Greater satisfaction with Gua sha
- Higher outcome expectation not associated with outcome
RANDOMIZED CONTROLLED PILOT STUDY: PAIN INTENSITY AND PRESSURE PAIN THRESHOLDS IN PATIENTS WITH NECK AND LOW BACK PAIN BEFORE AND AFTER TRADITIONAL EAST ASIAN “GUA SHA” THERAPY

**Enrollment**

- CNP
  - Assessed for eligibility (n=22)
  - Randomised (n=21)
  - TG (n=10)
  - Analysed (n=10)

- CLBP
  - Assessed for eligibility (n=22)
  - Randomised (n=19)
  - Resigning from the study before T1
  - TG (n=10)
  - Analysed (n=10)

**Analysis**

- CNP
  - Analysed (n=10)

- CLBP
  - Analysed (n=8)
Results

• Measures taken 1 week later

Table 2. Outcome Measures and Estimated Group Differences from ANCOVA at T2 for Each Group

<table>
<thead>
<tr>
<th>CNP</th>
<th>TG</th>
<th>WLC</th>
<th>Group Difference* at T2 (95% CI)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T1</td>
<td>T2</td>
<td>T1</td>
<td>T2</td>
</tr>
<tr>
<td>Pain at Rest (VAS)</td>
<td>4.3 ± 1.7</td>
<td>3.0 ± 2.2</td>
<td>5.2 ± 1.6</td>
<td>5.1 ± 1.4</td>
</tr>
<tr>
<td>PPT at Pain-Maximum</td>
<td>2.38 ± 0.26</td>
<td>2.46 ± 0.13</td>
<td>2.40 ± 0.19</td>
<td>2.34 ± 0.16</td>
</tr>
<tr>
<td>PPT at Pain-Adjacent</td>
<td>2.41 ± 0.23</td>
<td>2.50 ± 0.09</td>
<td>2.43 ± 0.17</td>
<td>2.36 ± 0.17</td>
</tr>
</tbody>
</table>

Note: *Group differences and p values from an ANCOVA model with two groups and baseline values as covariate.
EFFECTS OF A 4-WEEK DYNAMIC-BALANCE-TRAINING PROGRAM SUPPLEMENTED WITH GRASTON INSTRUMENT-ASSISTED SOFT-TISSUE MOBILIZATION FOR CHRONIC ANKLE INSTABILITY (SCHAEFER & SANDREY. J SPORT REHABIL. 2012)
## GISTM Treatment

<table>
<thead>
<tr>
<th>Graston-technique Instrument</th>
<th>Patient position</th>
<th>Strokes and anatomical area</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT4, GT5, knob of GT2 or GT3 (Figure 4)</td>
<td>Prone, foot over end of table. Add active plantar flexion and dorsiflexion range of motion. Release restrictions if found.</td>
<td>Sweep plantar fascia and gastrocnemius/soleus. Sweep heel pad, metatarsals, calcaneal insertion. Localize restrictions within gastrocnemius/soleus and Achilles. Mobilize soft tissue on medial and lateral side between Achilles and fibula. Mobilize fascia from calcaneus → metatarsal head and back.</td>
</tr>
<tr>
<td>GT4, GT5, knob of GT2 or GT3 (Figure 5)</td>
<td>Supine, foot over end of table. Add passive ankle and first toe range of motion. Release restrictions if found.</td>
<td>Sweep dorsum of foot → anterior tibialis → sweep between toes. Sweep dorsum of foot and anterior tibialis to isolate restrictions. Frame medial and lateral malleoli. Sweep first and fifth metatarsals. Mobilize soft tissue of talocrural and distal tibia/fibula joint. Sweep up and down medial and lateral aspect of tibia.</td>
</tr>
<tr>
<td>GT2, GT3, GT4</td>
<td>Side-lying with pillow between knees.</td>
<td>Sweep peroneals. If restrictions found, use strum, fan, or J-stroke as needed.</td>
</tr>
</tbody>
</table>
Results – No B/w group differences

Study underpowered – Type II error – 300 subjects needed
Augmented soft tissue mobilization vs natural history in the treatment of lateral epicondylitis: a pilot study
(Blanchette & Normand. J Manipulative Physiol Ther. 2011)

30 volunteers with unilateral LE and without CTS, radiculopathy, or injection w/i 30 d

Randomized

GISTM 2xwk x 5 wks
N=15

Control: Education about pathology, ergonomics; wrist flex/extend stretches 6x/d; medication. 1 time session + handout
N=15

6 week outcomes (examiner not blinded): PRTEE, VAS, PFG

12 analyzed

15 analyzed (*avg onset of LE 43 mo vs 22)
Augmented soft tissue mobilization vs natural history in the treatment of lateral epicondylitis: a pilot study
(Blanchette & Normand. J Manipulative Physiol Ther. 2011)

- No statistically significant differences between groups in PRTEE, VAS, and PFG
- Sample estimation for power= 0.8, 58 in each group

<table>
<thead>
<tr>
<th></th>
<th>PRTEE</th>
<th>VAS</th>
<th>PFG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GISTM</td>
<td>Control</td>
<td>GISTM</td>
</tr>
<tr>
<td>Baseline</td>
<td>37</td>
<td>30</td>
<td>46</td>
</tr>
<tr>
<td>6 wk</td>
<td>15*</td>
<td>25</td>
<td>16*</td>
</tr>
<tr>
<td>3 mo</td>
<td>16*</td>
<td>17†</td>
<td>17*</td>
</tr>
</tbody>
</table>

* † p<.05 compared to baseline for the respective group

Underpowered – Type II error
A PILOT STUDY COMPARING TWO MANUAL THERAPY INTERVENTIONS FOR CARPAL TUNNEL SYNDROME (Burke et al. J Man Manip Ther. 2007)

Outcome Measures
- Median nn sensory and motor NCT
- Self-reported
  - Pain
  - Function
  - Severity
- Phys exam signs

Study Population
Recruited patients with clinically suspected CTS

Recruited CTS Patients
- 1. Phone Interview as initial screening procedure (n = 67)
- 2. Laboratory Visit: Clinical Assessments and Electrodagnosis Studies to Determine Eligibility to Enroll in the Treatment Phase of the Clinical Study. (n = 36)
- 3. Laboratory Screening Data recorded as baseline outcome measures for eligible patients

Some of these Patients
Clinically and Electrodagnostically Confirmed CTS (n = 26)

Randomized

Graston Technique (n=14)
- Received GISTM treatments as allocated and completed the trial (n = 12)
- Withdrawals (n = 2)
  - Adverse reaction to first treatment
  - Unrelated study-injury after seven treatments

Soft Tissue Mobilization (n=12)
- Received SMT treatments as allocated and completed the trial (n = 10)
- Withdrawals (n = 2)
  - Did not report for treatment phase
  - Stopped coming for treatments after six visits without an explanation

Warm up
GISTM or STM
Stretch
Strengthen
Ice
Both groups improved in the Katz diagram indicating patterns of symptoms likely to be associated with CTS

Not powered to detect less than large effects

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>Differences b/w groups (statistical or clinically-meaningful)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distal motor latency</td>
<td>No</td>
</tr>
<tr>
<td>Distal sensory latency</td>
<td>No</td>
</tr>
<tr>
<td>VAS pain (0-100 mm)</td>
<td>Yes, GISTM -24.5 (95% CI -5.7, -43.26)*</td>
</tr>
<tr>
<td>Wrist ROM</td>
<td>No</td>
</tr>
<tr>
<td>Grip or Pinch Strength</td>
<td>No</td>
</tr>
</tbody>
</table>

*VAS MCID: If baseline 50-65 mm, then 19-27 mm. If baseline >65 mm, then 29-37 mm (Stauffer, Inj J Inflamm. 2011).
Comparison of rehabilitation methods in the treatment of patellar tendinitis


<table>
<thead>
<tr>
<th></th>
<th>ASTYM (N=10 + 4 crossover)</th>
<th>“Traditional” (N=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>6 wks</td>
</tr>
<tr>
<td>Resolution*</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>PJES (x/100)</td>
<td>74</td>
<td>85</td>
</tr>
<tr>
<td>Blazina</td>
<td>2.0</td>
<td>1.1</td>
</tr>
</tbody>
</table>

- Greater percentage improvement in “impairment scale” in ASTYM group (p=.04)
- Pain values not provided: ASTYM group improved from baseline to 6 & 12 weeks (p<.05), traditional group not significant

*Resolution criteria: 1) no swelling, 2) no pain with palpation, 3) <3/10 pain with single leg hop, squat to thigh parallel, eccentric step down*

- 61 y/o male with knee OA and pain x 18 mo
- Outcome Measures: 10 m walk test, LEFS, VAS
Results - LEFS

Figure 3. Participant responses on the Lower Extremity Functional Scale (LEFS).
Results – 10 m walk test

Figure 4. Participant’s walking speed measured by the 10-Minute Walk Test (10MWT) – Fast.
Results - VAS

**Figure 5.** Participant’s pain rating per Visual Analog Scale (VAS).
Is there more evidence out there?

• Other studies lacking details (e.g. tool/instrument usage)

• Language/terminology problem?
More to come...

**Comparison Study of Two Chiropractic Treatment Protocols for Knee Pain Due to Patellofemoral Pain Syndrome**

- **Condition:** Patellofemoral Pain Syndrome
- **Interventions:** Procedure: chiropractic manipulative therapy; Procedure: knee exercises; Procedure: Graston Instrument Soft Tissue Mobilization (GISTM)

**Astym® Compared Eccentric Exercise for Chronic Mid-substance Achilles Tendinopathy**

- **Condition:** Achilles Tendon Pain
- **Intervention:** Procedure: Astym

**Does the Addition of Manual Therapy Techniques Increase Gastrocnemius/Soleus Length More Than Stretching Alone?**

- **Condition:** Muscle Tightness
- **Interventions:** Procedure: Instrument Assisted Soft Tissue Mobilization;
  Procedure: Rearfoot joint mobilization; Other: Static stretching/ROM exercises
## Treatment Parameters

<table>
<thead>
<tr>
<th></th>
<th>RCT</th>
<th>Case Series</th>
<th>Case Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of visits</strong></td>
<td>1-10</td>
<td>3-15</td>
<td>5-16</td>
</tr>
<tr>
<td><strong>Treatment frequency &amp; duration</strong></td>
<td>2x/wk x 4-5 wks; 1x/wk x additional 2 wks</td>
<td>1-2x/wk, 2-32 wks</td>
<td>1x/wk – 3 x/wk, 3–8 wks</td>
</tr>
<tr>
<td><strong>IASTM Intervention duration</strong></td>
<td>?, 2-30 min</td>
<td>1-2 min/area, 15 min total</td>
<td>30-60 s bouts, 5-10 minutes</td>
</tr>
<tr>
<td><strong>Concurrent treatment</strong></td>
<td>None - exercise (stretch/strengthen); ice</td>
<td>Exercise, ice, MLD, HVLA</td>
<td>Exercise, ice, heat jt. mob, HVLA, e-stim, US, ART, kinesiotape</td>
</tr>
</tbody>
</table>
Conclusions

• IASTM use is trending
• Evidence in infancy (8 RCTs, mostly lower quality)
  – Lots of case reports
  – Effects of IASTM (from RCTs)
    • 1 session of Gua Sha may decrease pain and function \( \geq \) MCID for neck pain compared to moist heat or no treatment
    • Limited studies demonstrating clinically meaningful changes due to IASTM
      – Poor quality or low power in most studies
    • More comparative effectiveness trials needed
  – IASTM may affect soft tissue healing (fibroblast counts, tissue strength) in the short term
• Interdependence
  – Intervention
  – Regional
• Additional considerations: Clinician’s experience & Patient’s preferences
Questions

• Tool vs. no-tool?
• Does the type of tool matter?
• Who is most likely to benefit?
• Does the intent (i.e. treatment paradigm) matter?
• How much pressure?
  – Different pathology (MLD vs tendinopathy)
• Recurrence/retention/histology?
• Patient preference/expectations?
Thank you!
References

• Davies, C., & Brockopp, D. (2010). Use of ASTYM treatment on scar tissue following surgical treatment for breast
References (cont.)

References (cont.)


