A COMPARISON OF MYOFASCIAL TRIGGER POINT THERAPIES: A SYSTEMATIC REVIEW
There is no reported conflict of interest for the research performed or this presentation.
OUTLINE

- Background
- Objective
- Methods
- Studies
- Data Synthesis
- Conclusions
A trigger point is an area in tissue of hyper-irritability that is very tender when palpated, refers pain and creates a twitch-response when it is palpated (Unalan et al., 2011).

Location

A trigger point must have:
- palpable taut band
- exquisite tender spot in that taut band,
- patient recognition of the pain as “familiar”
- pain should be recognized when stretching the tissues (de las Penas et al., 2005).
Latent Trigger Points

- Can be found in patients who do not have pain.
- Patients often use less analgesic substances for treatment.
- Patients often have a higher pain threshold.
- Can change activation patterns of muscles and related functional muscles.
- Can limit ROM (Trampas et al., 2011).
Active Trigger Points

- Patients will experience more pain.
- Reactive to stretching/compression.
- Will exhibit familiar pain patterns to the patient.
- ROM and function of the patient can be limited (Trampas et al., 2011).
**BACKGROUND**

**TREATMENTS**

- **Modalities**
  - Ultrasound
  - Electrical stimulation
  - Heat/Cold

- **Injections**
  - Botulinum toxin A
  - Bupivacaine/Lidocaine

- **Manual Therapies**
  - Ischemic Compression
  - Muscle Stripping
  - PNF
  - Self-myofascial release

- **Lidocaine Patches**

- **Nerve Root Stimulators**
To examine the efficacy of various trigger point treatments and determine which provides the best patient-oriented outcomes.
This systematic review was performed utilizing the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

Search engines:
- PubMed
- SPORTDiscus
- Medline Complete
- Web of Science.
Search terms for this review included:

- “Trigger points [Title]”
- “Trigger point therapies [Title]”,
- “Trigger point manual therapy [Title]”
- “Trigger point massage [Title]”
- “Trigger point AND ultrasound [Title/Abstract]”
- “Trigger point AND injection [Title/Abstract]”
- “Trigger point AND manual therapy [Title/Abstract]”
METHODS
INCLUSION CRITERIA

- Distinct outcome for use of one of the aforementioned therapies.
- Use of a visual analogue scale (VAS) as well as comparing ROM
- Comparison of a therapy versus another therapy or a control group.
- No restriction
  - Location of trigger points
  - Latent versus active trigger points.
- Peer reviewed journal
  - Preference of a Randomized Controlled Trial (RCT).
Lack of comparison group or a comparison of treatments.

Lack of utilization of one of the aforementioned modalities/treatments.
Articles were graded using the Physiotherapy Evidence Database (PEDro) scale and were preferably used if they rated at a “6” or higher on the scale.

- No restriction on age, race or sex.
- Language not restricted.
METHODS
DATA COLLECTION AND SYNTHESIS OF RESULTS

- Studies were categorized by modality:
  - 4 articles chosen per modality
  - Ultrasound Therapy
  - Injection Therapy
  - Manual Therapy
- Title/abstract review was used to determine study inclusion.
- VAS and ROM were compared for each therapy.
- It was determined on an article by article basis if ROM was a significant predictor for return to function.
The 12 articles compiled had a mean average of 6.3 ± 1.3 on the PEDro scale.

This score was consistent with the desired average of this systematic review.
<table>
<thead>
<tr>
<th>Included Study</th>
<th>Comparisons</th>
<th>Major Results</th>
<th>PEDro</th>
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</thead>
<tbody>
<tr>
<td>Affaitati et al. 2009</td>
<td>1: Lidocaine patch</td>
<td>• Lidocaine patch/injection &gt; Baseline/placebo: VAS pain, PPT, QOL</td>
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<tr>
<td></td>
<td>2: Placebo patch</td>
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<td>3: Injection</td>
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<td>Ay et al. 2011</td>
<td>1: Phonophoresis</td>
<td>• Phonophoresis/ultrasound &gt; placebo: VAS pain, cervical ROM, # TPs</td>
<td>7</td>
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<tr>
<td></td>
<td>2: US</td>
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<tr>
<td></td>
<td>3: Placebo US</td>
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<tr>
<td>Ga et al. 2007</td>
<td>1: IM stimulation</td>
<td>• IM stim &gt; injection: pain VAS, cervical ROM, depression</td>
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<tr>
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<td>2: Injection</td>
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<tr>
<td>Graboski et al. 2005</td>
<td>1: Injection (Botulinum Toxin A)</td>
<td>• Both treatments effective for ↓ VAS pain</td>
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<td></td>
<td>2: Injection (bupivacaine)</td>
<td>• No difference in duration/magnitude of relief/function/satisfaction</td>
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<td></td>
<td></td>
<td>• Dry needling &gt; MT 2 weeks post</td>
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<td>Kim et al. 2013</td>
<td>1: Injection 2: Injection + ischemic compression (30s) 3: Injection + ischemic compression (60s)</td>
<td>• Injection + ischemic &gt; injection</td>
<td>6</td>
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<tr>
<td></td>
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<td>• No difference b/n 30s and 60 s</td>
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<td>Majlesi et al. 2004</td>
<td>1: High-power, pain-threshold US 2: Conventional US</td>
<td>• High-power &gt; conventional</td>
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<td></td>
<td></td>
<td>• Less total tx with high-power</td>
<td></td>
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<tr>
<td>Montanez-Aguilera et al. 2010</td>
<td>1: Ischemic compression</td>
<td>• ↑ AROM in neck</td>
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<td></td>
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<td>• ↓ sensitivity of TP according to VAS</td>
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<td>Renan-Ordine et al. 2011</td>
<td>1: Self stretching 2: Self stretching w/manual therapy</td>
<td>• Group 2 &gt; Group 1: physical function, SF-36, PPT over calf</td>
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<td></td>
<td></td>
<td>• MT/phonophoresis &gt; US</td>
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<tr>
<td>Trampas et al. 2010</td>
<td>1: PNF stretching 2: Manual therapy + PNF stretching 3: Control</td>
<td>• MT + PNF &gt; PNF/Control: VAS Pain, knee ROM, PPT</td>
<td>7</td>
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<tr>
<td>Unalan et al. 2011</td>
<td>1: High-power, pain-threshold US 2: Injection</td>
<td>• No difference between VAS pain/cervical ROM or length of tx</td>
<td>7</td>
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Manual therapy

- Ischemic compression effective when combined with PNF protocols.
- Effective with injection therapy
- Not statistically different from injection therapy or dry needling.
- High-power US to patients’ pain threshold and phonophoresis > conventional ultrasound treatment.
CONCLUSIONS

- Manual therapy, when combined with another modality or therapy, produces superior results.
- High-power US or phonophoresis may result in better outcomes compared to conventional US.
- Length of symptomatic relief from each modality was unclear which warrants further investigation.
- Future research should emphasize a quantitative assessment of pain reduction and range of motion improvement to identify the effectiveness of myofascial TP therapies.
CONCLUSIONS
FACTORS TO CONSIDER

- Clinician skill and experience
- Patient experience
- Location of the trigger point
- Age
- Occupation (clinical setting versus athletic population)
Moving Forward
- Utilizing new treatments on trigger points that have not responded to traditional therapy
  - Manual Therapy versus Injection versus Ultrasound Therapy.
  - Lidocaine Patches versus Nerve Root Stimulators.

Research Going Forward
- Objective research comparing VAS and ROM changes with statistical analyses.

Latent versus Active Trigger Points
- Conservative versus Aggressive treatment.

Applying treatments in your practice!
RESOURCES


