

**A Critical Appraisal of: Augmented Soft Tissue Mobilization vs  
Natural History in the Treatment of Lateral Epicondylitis: A Pilot  
Study by Marc-André Blanchette, DC, MSc, and Martin C.  
Normand, DC, PhD**

**By**

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## **Abstract**

Instrument assisted soft tissue mobilization or IASTM/ASTM is a relatively new treatment for the treatment of musculoskeletal conditions. This critical review sought to identify if IASTM can decrease pain and recovery time in subjects with musculoskeletal injuries compared to traditional treatment protocol. A database search was done to find studies that looked at the use of IASTM for treatment of musculoskeletal conditions. The selected study was Augmented Soft Tissue Mobilization vs Natural History in the Treatment of Lateral Epicondylitis: A Pilot Study Blanchette et al. In this study, the researchers compared education on LE as a control to an ASTM group. They found significant differences in the pain measurements in the ASTM group. However, there was one clinician that provided all treatments and data collection which allowed for potential bias to influence the results. As well, there was a significant difference between the time since onset of symptoms in the two groups, which could have affected the potential improvement in the control group. Because of the potential bias and initial difference, this study should not be used as a stand-alone reason to perform ASTM on a patient, but serves as a starting point for a follow up study with a stronger design to prevent potential bias.

## **Key words**

IASTM, Lateral Epicondylitis, Soft Tissue Mobilization

## **Introduction**

Instrument assisted soft tissue mobilization (IASTM or ASTM) is a developing treatment in the field of physical therapy. It involves the use of tools to assist therapists in manual therapy techniques. However, its effect has not been completely identified. One potential use of that can be further investigated IASTM is the treatment of musculoskeletal injuries. The clinical question I sought to answer was: Does IASTM decrease pain and recovery time in subjects with musculoskeletal injuries compared to traditional treatment protocol?

## **Methods**

I conducted a database search using Academic Search Complete, CINAHL, MEDLINE, Rehabilitation & Sports Medicine Source, SPORTDiscus. These were all chosen to give a large breadth of available articles as well as those with greater emphasis on physical therapy and sports rehabilitation. I limited the search to: full text, peer reviewed articles only, within the last 15 years, experimental design, and English language only. I did this because I wanted to find more recent evidence in this area that provided an experimental design against exercise only groups. Because of the broad definition of IASTM and the different techniques that it involves, I included those articles that used IASTM, Graston, Gua sha, and Fascial Abrasion Technique. Also, because of the nature of the assignment, I excluded systematic reviews and meta-analyses. I was anticipating around 100 articles, and after I applied my criteria the search came up with 89 articles that fit. I narrowed it down to three articles based on what was the closest fit to my clinical question in the experimental design. This broadened my question from just muscular injuries, to a more broad musculoskeletal injuries.

The study that best fit the above clinical question was: Augmented Soft Tissue Mobilization vs Natural History in the Treatment of Lateral Epicondylitis: A Pilot Study by Marc-André Blanchette, DC, MSc, and Martin C. Normand, DC, PhD. This study was done to investigate the effects of treatment of lateral epicondylitis (LE) with Augmented Soft Tissue Mobilization (ASTM) because this is the most common diagnosis of the elbow which is linked to absenteeism from work and residual disabilities after diagnosis. I chose this article because it fit most closely to my clinical question in the experimental design. This study has some deficits to be addressed. All of the treatments, and data collection were done by a single clinician which opens the door for potential bias in the results. As well, the control group had a significantly longer duration of the condition prior to the study, which could mean that the control group had a lower potential for improvement in their symptoms although their outcome measures were similar at the beginning of the study.

## **Results**

### Summary of the study

The researchers took 30 subjects and randomly allocated to the ASTM group where the subjects received ASTM treatments 2 times per week for 5 weeks or the control group where the subjects were educated on the natural progression of LE, advice on workstation ergonomics, and stretching exercises to do 30 seconds, 6 times per day. Disease progress was measured using the Patient-Rated Tennis Elbow Evaluation (PRTEE), the Visual Analog Scale (VAS), and Pain Free Grip Strength (PGS) both before the treatment began, after 6 weeks, and a long term follow up at 3 months. However, all of the subjects were treated by and had the data collected by a single

researcher. Only the ASTM group saw significant improvements in both the PRTEE and VAS scores at the 6 week follow up, and all of the subjects saw significant improvements in PFG at 6 weeks and all measures at 3 months. The researchers admit that the population of this study is not indicative of all LE patient nor did they identify the predisposing factors in the subjects' diagnosis. Because of this, they could not conclude a treatment suggestion in this study, but outlined a larger follow-up study, and recommended small tweaks in the study design to minimize potential bias in the results.

#### Appraisal of the study introduction

Overall, it was it was written well. The authors showed how debilitating lateral epicondylitis can be for patients. The aims of this study are to identify if ASTM could be used to treat LE. The authors identify literature to support their hypothesis. The critical variables have all been addressed in the introduction the independent variables were ASTM and education control. The dependent variables were the VAS, PFG, and PRTEE. It was clear and well written.

I would like to know the method of how the IASTM was performed. Some of the journal articles were from the 70s, so they are not very current, and it is likely that the data in those studies could be outdated. I feel like they should have provided more information on their reasoning to use ASTM as a treatment.

#### Appraisal of the study methods

This study was a longitudinal experimental design. 35 subjects were recruited, 30 participated in the study. 3 dropped out from the control group. It is possible those subjects were not improving and they did not feel motivated to show up. The subjects were split into 2 groups and results were compared between subjects. It did not say specifically if the subjects were

blinded. The Control group had a significantly longer time since onset of the disease. The investigators managed all of the groups the same except for the experimental intervention. The outcome measures were supported in sufficient detail. The procedure of data collection was explained clearly and could be replicated by others looking to replicate the study. They analyzed the data using ANOVA and SPSS.

One limitation in their design is that they did not say the exact method of the ASTM applied to the subjects, therefore it cannot be exactly replicated. A single clinician collected all of the data and applied all of the treatments.. As well, they did not speak much of the validity of the tools, though they did touch on it.

#### Appraisal of the study results

Overall, it was well organized and clear in the order that it was presented. They addressed all of the aims measured and reported all of the outcome measures presented in the methods. The p value they used was .05 and the confidence interval was 95%. The statistically significant results they found were: PRTEE and VAS at 6 weeks for the ASTM and 3 months for both groups and, PFG for both at 6 weeks.

However, they only described their results to a minimal extent which is why I think a bar graph comparing the results would have presented the information better than only using the tables as the researchers did. All of the figures were presented well and clearly, but it would have been nice to see a line graph to compare change over time. They did not identify a minimally clinically important difference or number needed to treat, and not all of the statistically significant results were clinically significant.

### Appraisal of the study discussion

They expanded more on the meaning of their findings in the end of their discussion, and they tied the findings into existing literature effectively. They also outlined a follow up study with more participants and a blind put in place to reduce potential bias and to find a clinically significant result.

Some of the journals they cited were more than 20 years old, so it is possible that the data in those is no longer applicable. They listed a couple of limitations to their study, those are: a significant difference in onset of conditions there was a low number of participants, and there was no blind for the researcher.

### **Discussion**

This study mildly supports the idea for using IASTM or ASTM for treatment of musculoskeletal conditions for a more rapid recovery. Because of the potential bias in this study and the difference in time since onset of symptoms between the two groups, this study alone cannot justify the use of IASTM in a clinical setting. This study specifically supported a more rapid recovery in lateral epicondylitis, which is an inflammation of the common extensor tendon of the forearm. However, this study needs to be re-visited with a larger subject population and in a way that minimizes potential bias.

From the results of this study, I would argue in favor of using ASTM for treatment of LE. There are potential benefits and risks of using this treatment, the data presented in this study shows that there can be a significant improvement in symptoms with the use of ASTM. The side effects of this treatment are common, but mild. Those include redness and irritation as well as soreness in the area. Redoing this study with a separate researcher collecting the data that was

blind to the subject condition, and without a significant initial difference in subjects' symptoms would improve the argument in favor of using ASTM.

This paper alone is not enough to justify the use of ASTM with patients or clients, but it does add to the body of evidence in support of the use. However, I would feel comfortable using this treatment with a patient with LE because I have been certified in IASTM. In order to apply this treatment to a broader patient population, I would want more experience to improve my skill level in this treatment.

Blanchette et al. designed this as a pilot study to investigate the use of ASTM in the treatment of LE. In that aim, I think they accomplished their goal, but this study needs to be revisited with a different design, as they suggest. Their results do support the further investigation in this treatment, but have a potential for bias because there was only one clinician that was not blinded in the treatment condition during data collection.

## **Reference**

Blanchette M, Normand M. Original Article: Augmented Soft Tissue Mobilization vs Natural History in the Treatment of Lateral Epicondylitis: A Pilot Study. *Journal Of Manipulative And Physiological Therapeutics* [serial online]. January 1, 2011;34:123-13