GRADUATE POSTER FINALIST

Instrument-assisted soft tissue mobilization for improving shoulder ROM: A Critically Appraised Topic
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Focused Clinical Question: In overhead athletes, is Instrument-Assisted Soft Tissue Mobilization (IASTM) beneficial in improving shoulder ROM, compared to conservative therapies? Data Sources: PubMed Central, Physical Education Index, Alternative Health Watch, SportsDiscus, Medline, and CINAHL were searched using the following terms: astym OR graston OR iastm OR "instrument assist* soft tissue mobil*" OR "augment* soft tissue mobil*". Search limits were set to include articles within the last five years, text in English, and human-based. Study Selection: Inclusion criteria were set as Level 2 evidence or higher, subjects are overhead athletes, IASTM is the intervention, and conservative therapies are the comparison. For the purposes of this appraisal, conservative therapies included rest, stretching and strengthening. Data Extraction: Glenohumeral internal and external rotation, and horizontal adduction were measured by an inclinometer or goniometer.

Summary Measures: Outcomes were assessed by the change in degrees of ROM (pre-test, post-test differences). Between-group statistical comparison was done via Analysis of Variance (ANOVA) and P-values were reported. Evidence Appraisal: Two reviewers independently appraised each study using the Physiotherapy Evidence Database Scale (PEDro) to assess methodological quality.

Search Results: The search resulted 119 articles. After duplicate removal and a screening process, three articles met the eligibility criteria. Data Synthesis: All three studies examined healthy patients but had different methodologies, making a direct comparison impossible. Among other variables unrelated to this critical appraisal, Bailey and colleagues compared IASTM to self-stretching and measured dominant and non-dominant arms for glenohumeral external and internal rotation, and horizontal adduction. Laudner and colleagues compared IASTM to rest measuring glenohumeral internal rotation and horizontal adduction in the dominant arm. Both studies utilized an inclinometer to assess ROM and reported significantly greater improvements after IASTM treatment in glenohumeral internal rotation and horizontal adduction, as compared to stretching alone (p<.001) and rest (p<.001). Thus, the results of these suggest IASTM improves shoulder ROM in healthy overhead athletes compared to stretching and rest. The final study, Heinecke and colleagues compared IASTM and a dynamic stretching/strengthening protocol. The authors assessed glenohumeral internal rotation, external rotation, horizontal adduction and Apley’s Scratch Test, via a goniometer. The only significant finding was that IASTM combined with the exercise protocol improved left arm Apley’s scratch test in the under arm position, compared to the control group (exercise protocol alone). Among other threats to validity, their lack of significance may be attributed to the fact that a novel dynamic protocol was used. Evidence Quality: Bailey and Laudner had PEDro scores of 6, and Heinecke and colleagues had a score of 5. All three studies were missing blinding of patients and therapist, concealment of allocation, and unequal baseline measurements between groups. Heinecke and colleagues was also missing blinding of the assessors. Bailey estimated (n=54) and achieved (n=60) the required number of subjects needed to reach a power of .80. The others did not perform power analyses. All studies examined healthy overhead athletes; therefore generalizations to other populations cannot be made. Conclusions: Two of the three studies suggest IASTM is a useful strategy for improving shoulder internal and horizontal adduction ROM in healthy overhead athletes, compared to stretching and rest. However, some caution should be used as these studies have PEDro scores of 6. Heinecke is lower quality (PEDro score 5) with numerous threats to validity. As a result, their findings should be interpreted with caution. While there is promising evidence for the use of IASTM to increase glenohumeral ROM, stronger studies need to be conducted with more consistent and better methodologies. Word Count: 579 words.