

Tracking Recovery Following Conservative Intervention in Individuals with Chronic Ankle Instability:

A Systematic Review and Meta-Analysis

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INTRODUCTION

Ankle sprains are the most common musculoskeletal injury in both physically active and general populations (1). Chronic ankle instability (CAI) can develop in up to 70% of individuals following an acute lateral ankle sprain (1). It is characterized by residual symptoms persisting beyond one-year post-initial injury, perceived ankle instability or giving way, and injury recurrence (1). The healthcare burden and societal costs associated with CAI are considerably high and result in an estimated annual cost of \$6.2 billion in the United States of America (1). There is a documented negative impact on participation showing lower levels of self-selected physical activity and reduced quality-of-life compared to those without ankle injury (1).

PURPOSE

To determine if, and when, a pattern exists describing failure of conservative treatment for individuals with CAI that may serve to differentiate copers from non-copers.

METHODS

Following the PRISMA guidelines, a systematic search of eight databases was conducted. Using pre-determined inclusion and exclusion criteria, data was extracted by two authors (T.D, K.T). Risk of bias (RoB 2) was performed by two authors (S.B, L.K.) to determine study quality. Each outcome was grouped according to WHO-ICF construct of Body Function and Structure, Activity and Participation and by time point. A standardized mean difference or mean difference was calculated between intervention and control groups. A sensitivity analysis was performed to explain any heterogeneity.

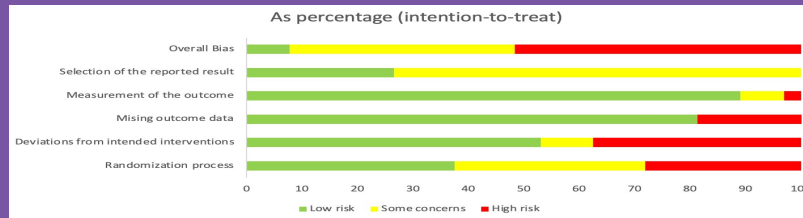


Figure 1: Risk of bias for included studies (RoB 2).

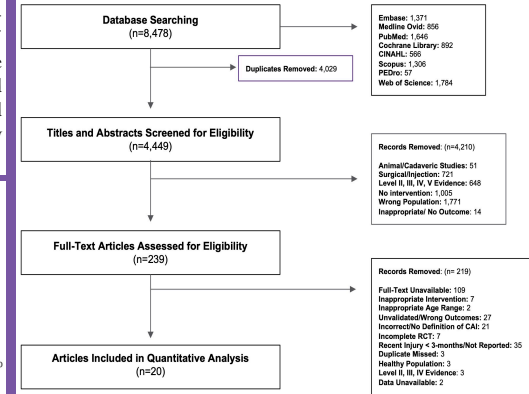


Figure 2: PRISMA study flow diagram.

RESULTS

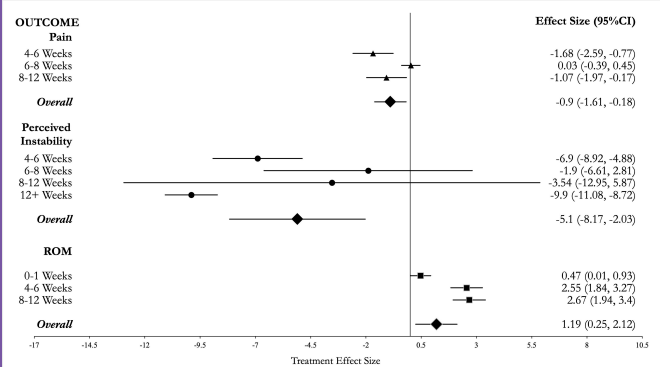


Figure 3: Change in pain, perceived instability, and range of motion over time.

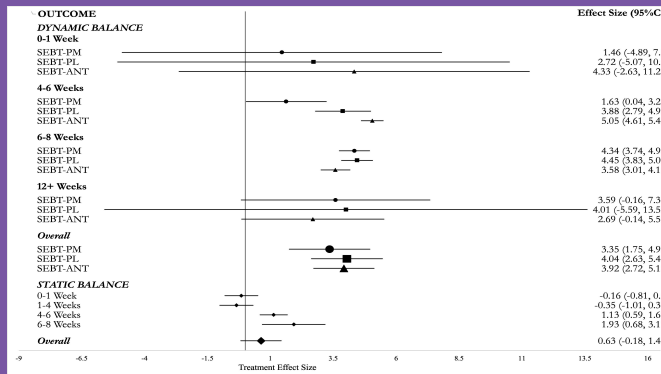


Figure 4: Change in dynamic and static balance over time.

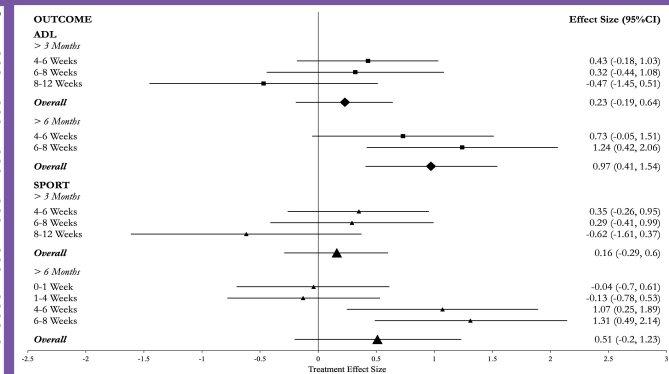


Figure 5: Change in activities of daily living and sport participation over time.

DISCUSSION & CONCLUSION

The clinical pattern identified in this meta-analysis suggests that by four to six weeks of conservative intervention, there is significant and sustained improvement in clinical outcome measures of pain and function that is mirrored by self-reported improvement in participation in activities of daily living and sport. However, the improvement in participation does not appear to be maintained beyond eight weeks of follow-up. Clinicians may have an eight-week window in which to see clinical improvements prior to classifying individuals as non-copers. However, caution is warranted when interpreting these results due to the low quality of the evidence, unexplained heterogeneity, and limited external validity. For future research, we support the International Ankle Consortium guidelines for standardization of inclusion criteria in studies investigating CAI and use of appropriate patient-reported outcomes to elucidate whether clinical changes affect other pain drivers (such as kinesiophobia) and correlate with increased participation, reduced disability, improved quality of life, and ultimately decreased healthcare burden.

CLINICAL IMPLICATIONS

Based on the proposed clinical trajectory that may serve to identify non-copers, clinicians should consider the routine use of outcome measures to determine whether change is occurring within the expected time frame. Outcomes used should include both patient-reported and objective clinical measures. The potential for early recognition of non-copers may help to stratify individuals towards the appropriate care pathway and may limit the negative sequelae and decrease the overall burden and societal costs associated with management of CAI.