Clinically Relevant Differences Found Between Individuals with Chronic Ankle Instability and Healthy Controls - A Systematic Review

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Introduction

The most common injury to the ankle is the inversion ankle sprain (IAS). Individuals who endure an IAS also go on to develop chronic impairments 75% of the time.

Chronic instability post IAS may result from:
- Changes to ligamentous integrity
- Altered joint kinematics
- Altered neuromuscular and postural control
- Strength deficits

Residual instability interferes with:
- Resumption of daily activities
- Returning to sport
- Returning to recreational activities
- Returning to work

Method

A computerized literature search was conducted using Pubmed, CINAHL and Embase (2004-2014), and "hand-searches" were performed using the reference lists of systematic reviews and meta-analyses.

Keywords in search terms:
- Inversion ankle sprain
- Testing, screening, physical examination
- Outcome assessment
- Re-injury, risk of re-injury
- Recovery of function

Results

Subjective Report

<table>
<thead>
<tr>
<th>SF-12</th>
<th>ATOA</th>
<th>CAIT</th>
<th>FAD-1</th>
<th>FADI</th>
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</thead>
</table>

Lower Extremity Strength

- Eversion/Inversion
- Hip Extension
- Hip Abduction
- PF/DF

Effect Size

-1 to 1

Static Postural Control

<table>
<thead>
<tr>
<th>SLS - Eyes Closed</th>
<th>BESS</th>
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Dynamic Postural Control

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<tr>
<th>SEBT - Fatigue</th>
<th>SEBT - Non-Fatigue</th>
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Effect Size

-2 to 2

Hop Testing

- Square Hop
- Side Hop
- Single Limb Hop
- Figure of 8 Hop
- Multiple Hop

Effect Size

-1 to 5

Interpretation of Results:

- Average effect size index for each measure calculated using means and standard deviations for CAI and healthy controls
- Based on this data, for all 5 parameters assessed, CAI individuals demonstrated a lower quality of performance than healthy controls for each measure tested

Discussion

- These five parameters should all be utilized to assess patient readiness for return to activity following IAS.
- The evidence reviewed consistently demonstrated a difference in performance for all five parameters between healthy controls and individuals with CAI.
- Normalizing these modifiable constructs through standardized testing procedures may reduce the risk for future re-injury and chronic ankle instability.
- The secondary comprehensive checklist developed can serve as a foundation for future research regarding a systematic rehabilitation approach for IAS.

Clinical Relevance

- Identifying the differences between controls and individuals with CAI can facilitate the development of a standardized rehab discharge criteria following IAS.

Results-Comprehensive Checklist

<table>
<thead>
<tr>
<th>Subjective</th>
<th>ROM</th>
<th>Strength</th>
<th>Spinal Postural Control</th>
<th>Dynamic Postural Control</th>
<th>Functional Movement</th>
<th>Hop Testing</th>
<th>Performance</th>
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<tbody>
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References