BACKGROUND AND PURPOSE

- Lower extremity (LE) injuries account for over 50% of all injuries sustained by intercollegiate athletes.
- Pre-participation identification of risk factors may enhance the effectiveness of injury prevention efforts.
- Limited research evidence is available to guide screening for identification of overuse injury risk.
- The purpose of this study was to identify any pre-participation performance capabilities, physical limitations, or personal characteristics associated with subsequent occurrence of an overuse core or LE musculoskeletal injury.

Table 2

<table>
<thead>
<tr>
<th>Predictor Cut-Point</th>
<th>OR</th>
<th>95% CI</th>
<th>Predictor Cut-Point</th>
<th>OR</th>
<th>95% CI</th>
<th>Predictor Cut-Point</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFS ≤ 97</td>
<td>4.17</td>
<td>1.10, 15.58</td>
<td>HTH ≤ 61 s</td>
<td>4.12</td>
<td>1.07, 15.87</td>
<td>WSHAsym ≥ 25%</td>
<td>2.64</td>
<td>1.03, 6.76</td>
</tr>
<tr>
<td>HTH ≤ 62 s</td>
<td>2.52</td>
<td>0.54, 12.32</td>
<td>HTH ≤ 31 s</td>
<td>2.66</td>
<td>1.03, 7.18</td>
<td>WSHAsym ≥ 25%</td>
<td>2.64</td>
<td>1.03, 6.76</td>
</tr>
<tr>
<td>WSHAsym ≥ 25%</td>
<td>4.12</td>
<td>1.07, 15.87</td>
<td>HTH ≤ 31 s</td>
<td>2.66</td>
<td>1.03, 7.18</td>
<td>WSHAsym ≥ 25%</td>
<td>2.64</td>
<td>1.03, 6.76</td>
</tr>
</tbody>
</table>

PARTICIPANTS AND PROCEDURES

- Participants were 100 NCAA Division I college athletes from 9 different teams.
- Pre-participation surveys relating to functional status also appear to have injury prediction value.
- Pre-participation physical examination prior to first practice session.
- Core muscle endurance tests: Wall Sit Hold (WSH), Horizontal Trunk Hold (HTH), Y-Balance.
- Survey for effects of previous injuries on functional capabilities: Assessment of Functional Status (AFS).
- Electronic injury documentation system used for injury surveillance throughout sport season.
- Pre-participation screening for assessment of injury risk can identify a subset of athletes who would derive benefit from an intervention that addresses modifiable risk factors for overuse or acute musculoskeletal injury.

Table 3

<table>
<thead>
<tr>
<th>Predictor Cut-Point</th>
<th>Adj OR</th>
<th>90% CI</th>
<th>Predictor Cut-Point</th>
<th>Adj OR</th>
<th>90% CI</th>
<th>Predictor Cut-Point</th>
<th>Adj OR</th>
<th>90% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFS ≤ 97</td>
<td>4.17</td>
<td>1.10, 15.58</td>
<td>HTH ≤ 61 s</td>
<td>4.12</td>
<td>1.07, 15.87</td>
<td>WSHAsym ≥ 25%</td>
<td>2.64</td>
<td>1.03, 6.76</td>
</tr>
<tr>
<td>HTH ≤ 62 s</td>
<td>2.52</td>
<td>0.54, 12.32</td>
<td>HTH ≤ 31 s</td>
<td>2.66</td>
<td>1.03, 7.18</td>
<td>WSHAsym ≥ 25%</td>
<td>2.64</td>
<td>1.03, 6.76</td>
</tr>
<tr>
<td>WSHAsym ≥ 25%</td>
<td>4.12</td>
<td>1.07, 15.87</td>
<td>HTH ≤ 31 s</td>
<td>2.66</td>
<td>1.03, 7.18</td>
<td>WSHAsym ≥ 25%</td>
<td>2.64</td>
<td>1.03, 6.76</td>
</tr>
</tbody>
</table>

RESULTS

- Descriptive statistics for males and females presented in Table 1.
- ROC curves for each category of injury type presented in Figures 1-3.
- Comparison of injury occurrence for high-risk versus low-risk status.
- Logistic regression analyses yielded a different prediction model for each category of injury type. 1) AFS, 2) HTH, 3) WSH-Asymmetry (WSHAsym).
- ROC analyses identified number of positive factors for optimal discrimination of high-risk from low-risk cases.

CLINICAL RELEVANCE

- The combination of AFS, HTH, and WSHAsym can quantify risk for occurrence of overuse or acute injury.
- A larger number of overuse injury cases is needed to improve prediction model accuracy and precision.

REFERENCES