Time to stability after landing as a new method of predicting ankle sprain?

Małgorzata Kowalczyk, Aleksandra Truszczyńska-Baszak
### Author’s affiliation and conflicts of interest

<table>
<thead>
<tr>
<th>Małgorzata Kowalczyk, Msc</th>
<th>Aleksandra Truszczyńska-Baszak, PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carolina Medical Center, Warsaw, Poland</td>
<td>Józef Piłsudski University of Physical Education in Warsaw</td>
</tr>
<tr>
<td>I have no financial conflicts to disclose.</td>
<td>I have no financial conflicts to disclose.</td>
</tr>
</tbody>
</table>
Background

- The ability to stabilize quickly is considered to be a protective factor against joint injury. Very few studies are available in which Time To Stability (TTS) after landing is determined.
Background

- TTS defines the time after landing until stabilization of the ground reaction forces in the antero-posterior or lateral-medial plane is achieved (normal standing).
Background

- Stability times based on ground reaction forces reach a few seconds, which seems useless from a clinical point of view.
Study aim

- To develop a new method of determining Time To Stability in terms of ballistic movement after landing and to assess its effectiveness in differentiating people suffering from chronic ankle instability and healthy individuals.
Material and Methods

- The study group consisted of 15 subjects suffering from chronic ankle instability (with USG or MRI confirmation of ATFL or ATFL and CFL damage- III degree), while the control group included 15 healthy persons.
Material and Methods

- Both groups were evaluated during one-leg landing on the HUR stabilographic platform. TTS was determined until the center of pressure (COP) path sway in time was silenced to the level of normal standing.
Results

The average TTS after landing in a study group was 243 ms, whereas in a control group it was 230 ms ($p < 0.05$, $\eta^2 = 0.06$).
Conclusion

- Assessing TTS after one-leg landing seems to be a reliable research tool that can determine the predisposition to inversion ankle sprain. There is a need for further testing on a larger number of people to confirm the results of the study.
References


