



- Current Issue
- In Press

Home

Mission

Scope

Editorial Board

For Reviewers

Submission

Statistics

Contact

Back Issues



## Balance Training Exercises Decrease Lower-Limb Strength Asymmetry in Young Tennis Players

Italo Sannicandro , Giacomo Cofano, Rosa A. Rosa, Andrea Piccinno

✉ [More Information»](#)

Department of Clinical and Experimental Medicine, University of Foggia, Italy

Italo Sannicandro  
 ✉ Corso di Laurea in Scienze Motorie, Viale Virgilio- 71100 Foggia, Italy  
 Email: [italo.sannicandro@unifg.it](mailto:italo.sannicandro@unifg.it)

Received: 23-08-2012 -- Accepted: 27-01-2014 -- Published (online): 01-05-2014

### ABSTRACT

The issue of functional asymmetries in the lower-limbs has been the subject of numerous recent investigations concerning many different contact, limited-contact and non-contact sports. The presence of strength asymmetries in the lower-limbs of young athletes practicing various sporting disciplines is considered an intrinsic risk factor for injury; in such cases, compensation strategies should thus be implemented aimed at eliminating, or at least limiting, the degree of asymmetry in order to avoid the negative consequences asymmetries can have upon the health of young sportsmen and women on the long-term. The aim of the present study was to examine the presence of functional asymmetries in the lower-limbs of young tennis players in strength and speed drill performance and to test a specific balance-training programme in its capacity to effectively reduce such asymmetries. Twenty-three young tennis players were randomly assigned to the Experimental Group (EG) (n = 11: 4 females, 7 males; 13.2 ± 0.9 years; 50.8 ± 8.9 Kg; 1.63 ± 0.08 m) or Comparison Group (CG) (n = 12: 4 females, 8 males; 13.0 ± 0.9 years; 51.1 ± 9.2 Kg; 1.61 ± 0.09 m). To quantify percent asymmetries in lower-limb strength before (T0) and following (T1) training, performances were assessed in the one-leg hop test (OLH), side-hop test (SH) and side steps and forward 4.115-m test (4m-SSF). Performances in the 10 and 20m sprint tests and the Foran test were also assessed. The EG completed a total of 12 training sessions directed at balance training; two 30-minute sessions/week over a 6-week period. The CG followed an identical training schedule, but training sessions consisted of tennis-specific drills only. The results reveal significant differences between pre- and post-training tests in the EG only: the degree of lower-limb asymmetry was decreased in the EG following completion of the training programme, as assessed using the OLH test (p < 0.001), SH test (p < 0.001) and 4m-SSF test (p < 0.05). A significant interaction and main effect of training was also observed in the EG: balance training led to a significant reduction in the percent of asymmetry in lower-limb strength, as measured using the SH (p < 0.01), 4m-SSF (p < 0.01) and OLH (p < 0.05) tests. These results confirm that balance training exercises are able to counteract/reduce the degree of asymmetry in lower-limb strength in young tennis players.

**Key words:** Strength asymmetry, risk of injury, speed, lateral/side movements

### Article Tools

- PDF Download
- Full Text
- How to Cite
- Citations in ScholarGoogle
- Email link to this article

Rosa A. Rosa,  
 Andrea  
 Piccinno, Italo  
 Sannicandro,  
 Giacomo  
 Cofano,  
 (2014)  
 Balance  
 Training  
 Exercises  
 Decrease  
 Lower-Limb  
 Strength  
 Asymmetry in  
 Young Tennis  
 Players.  
*Journal of  
 Sports Science  
 and Medicine*  
 (13), 397 -  
 402.

Your name:  
 Your E-mail:  
 Recipient's E-mail:

- Statistics
- New content alert
- Tweet

Related articles by  
[Strength asymmetry](#)  
[risk of injury](#)  
[speed](#)  
[lateral/side movements](#)

Other articles by  
[Italo Sannicandro](#)  
[Giacomo Cofano](#)