



# Balance and vertical jump capacity in young amateur soccer players of different age



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## Introduction

It is well known that in many sport activities a technical movement performed in a situation of balance is more effective and easier accomplished. However, athletes are often induced to work in unbalanced situations. It is probable that soccer players that have the same jumping capacity, but different balance capacities, express different strength and capacities in unbalanced conditions. Balance Training (BT) in short time, seems to be able to improve muscular strength and to reduce eventual imbalances between corresponding limbs (1, 2).

The purpose of this study is to investigate the correlation between balance and strength in young soccer players.

## Methods

The Balance test reliability of an electronic footboard (Libra, Easyteach, Prato, Italy) was measured by 15 subjects 10 times. Across correlation test re-test was verified how starting from the second test was sufficient to use 3 tests measured to obtain a reliable middle value, confirming the indications of a previous work on the same tool (3). To confirm again that consideration, it is done test re-test correlation on data of all the subjects for all the tests carried out ( $R > 0.80$ ;  $P < 0.01$  for all tests).

They were carried out: Test 1 Libra Fixed Point (LPF), balance maintenance for 30s, open eyes look on a fixed point (height of the eyes), both legs support and low knee flex, oscillation on frontal plan. Test 2 Libra Closed Eye (LB), identical to the previous, but with eyes blindfolded. The experimentation was carried out on 133 male amateur soccer players (age:  $18.2 \pm 1.9$  yrs). The capacity of strength was appraised with vertical leap (Optojump Microgate, Bolzano, Italy) with counter movement and free arms (CMJb) both legs support.

96 subjects carried out the same test one leg support with dominating limb (CMJMono).

**Figure 1**  
show execution of (CMJ)  
Counter Movement Jump test



Figure 1

**Figure 2**  
show execution of Balance Test  
and Libra software platform

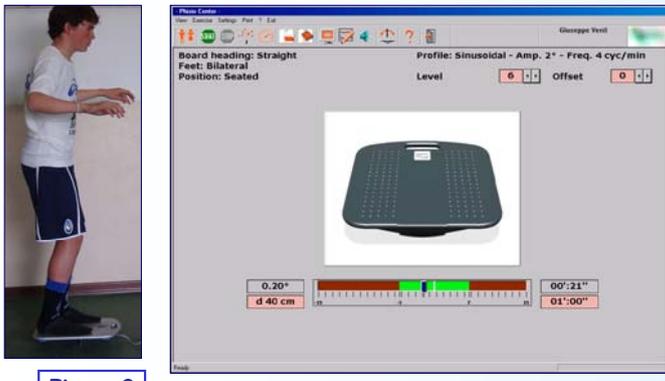


Figure 2

## Results

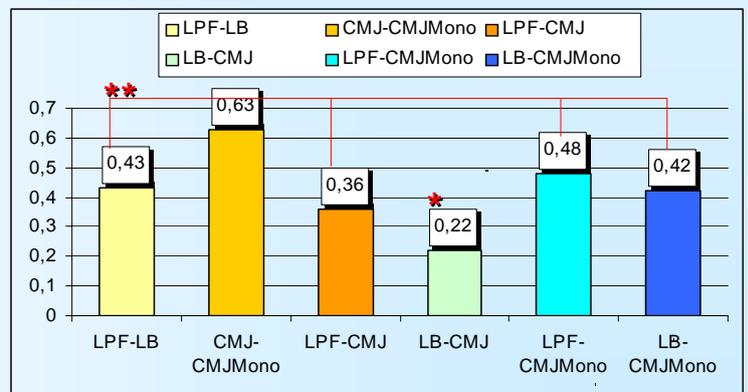
The test of balance LPF-LB resulted significantly correlated between each others ( $R = 0.43$ ;  $P < 0.01$ ); as well as  $CMJ-CMJMono$  ( $R = 0.63$ ;  $P < 0.01$ ). A significant correlation was found between the test of balance LPF and jumping  $CMJ$  ( $R = -0.36$ ;  $P < 0.01$ ); between  $LB$  and  $CMJ$  ( $R = -0.22$ ;  $P < 0.05$ ); between  $LPF$  and  $CMJMono$  ( $R = -0.48$ ;  $P < 0.01$ ); between  $LB$  and  $CMJMono$  ( $R = -0.42$ ;  $P < 0.01$ ).

	LPF-LB	CMJ-CMJMono	LPF-CMJ	LB-CMJ	LPF-CMJMono	LB-CMJMono
Correlation	R=0,43	R=0,63	R=0,36	R=0,22	R=0,48	R=0,42
Sig. (2-tailed)	P<0,01	P<0,01	P<0,01	P<0,05	P<0,01	P<0,01

Table 1 and Figure 3 show correlation between the test.  
Significant value using T-Test 2-tailed

## Discussion/Conclusion

Results of the present study indicate that a significant correlation exists between capacity of balance and strength in young soccer players. This indicates that, even if in the presence of other variables, the capacity to express strength and balance seem to be correlated in young subjects. These results justify interest towards the effects of the Balance Training that should be investigated in further research.



**Figure 4**  
The graph show the correlation between the test.  
\* $P < 0.05$ ; \*\*  $P < 0.01$

## References

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