



# BALANCE CAPACITY AND EFFICACY OF SHOOT OF GOAL IN ELITE YOUNG SOCCER PLAYERS



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## Introduction

A good balance capacity allows the player to express a better body control and more efficient body coordination in order to achieve more productive movements and play actions. Some studies have shown correlation between balance capacity and strength (1, 2), because the balance training determines specific adjustments in neuro-muscular system and therefore improves the actions characterized by strength, speed and power as, for example, the shoot on goal.

The aim of this study is to investigate the relationship between the balance capacity and efficacy of shoot on goal, evaluating the top speed impressed on the ball combined with a good precision in elite young football players

## Methods

47 young male soccer players, between the age of 9 and 11 years old (10.1±0.9), were analyzed. The balance was evaluated in conditions of monopodalic and bipodalic support by Libra (Easytech, Prato, Italy). The subjects had to remain in balance on the balance-board for 30 seconds each test, for a total of 3 valid tests for any kind of support. The efficacy of shoot on goal was tested evaluating the top speed by Speedster Laser Gun radar (Bushnell®). In order to record the correct speed, the goal area was divided into four congruent areas (3.66 x 1.22 m). The subjects shot a size 4 ball (weight 290 grams) from penalty kick for a total of 3 valid shots. The test was considered valid when the ball was shot at the maximum power in the top quadrant opposite the used foot (top-left for right foot, top-right for left foot) because this type of shot allows the subject to implement a better push of the ball due to longer contact of the foot on the ball. The tests evaluated the capacity of both prevalent and dominant limb. Prevalent limb is the one used to jump or support the other one during the shot. Dominant limb is the one expressing the best technical skills such as tricks or shoot on goal. The repeatability of data was evaluated by test-re-test while the correlation was studied using Pearson's correlation coefficient (software SPSS).

## Results and Discussion

Table 1 summarizes the results.

It was studied the relation of the age with the efficiency of shooting with the dominant limb (age-Tadm = 0.387\*\*) and with prevalent limb (age-Tapm = 0.430\*\*) finding a significant correlation. It was also found a significant correlation between age and the balance capacity with the dominant limb and the prevalent limb (age-Eqadm = 0.575\*\*; age-Eqapm = 0.551\*\*).

Age	Speed of shoot (m/s)		Balance capacity (a. u.)		
	Tadm	Tapm	EqBip.	Eqadm	Eqapm
9	70.8±4.8	57.5±4.5	7.3±2.4	4.5±2.1	4.7±1.6
10	63.9±5.3	51.0±7.8	9.2±3.4	6.2±2.5	4.6±2.2
11	76.3±4.0	65.1±6.3	8.0±3.3	9.4±4.1	8.6±3.4
10±1	71.4±6.6	59.1±8.2	8.1±3.1	6.9±3.8	6.3±3.2
Correlation age-shoot	R=0.387**	R=0.430**	Correlation age-balance	R=0.575**	R=0.551**

Table 1: average of data and standard deviation. \*\* It is a significant correlation between age and the shooting and between age and the monopodalic balance capacity.



Figure 1, 2: pictures show a protocol specific training on shooting skills and the test of shoot of goal

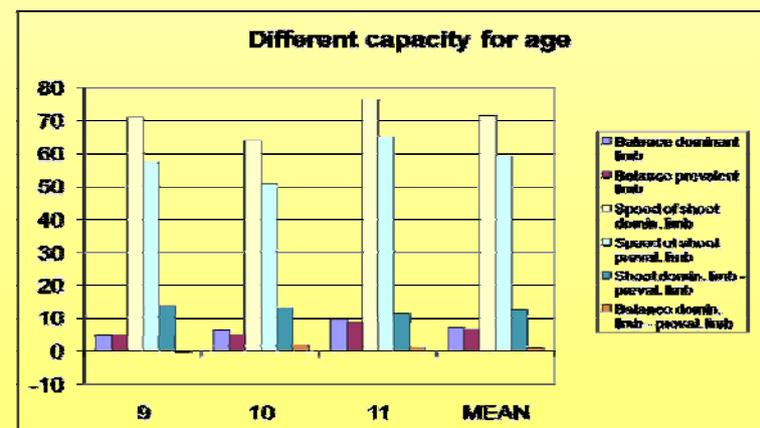


Figure 3: Graph shows different capacity for age .

## Conclusions

The results obtained allow us to suggest the implementation of a protocol specific training on shooting skills and balance capacity that would assist the normal development of coordination skills, conditionals and techniques. These exercises also provide a preventive effect for injuries to ankle and knee and could be used for recovery after injury.

## References

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