

## Coordination attached to the qualitative aspects of football

ROSARIO CERUSO<sup>1</sup>, GIOVANNI ESPOSITO<sup>2</sup>, FRANCESCA D'ELIA<sup>3</sup>  
<sup>1,2,3</sup> University of Salerno, ITALY

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### Abstract:

As we all know in all sports, therefore also in football, we must consider two fundamental aspects: the qualitative aspects and the quantitative aspects. The former mainly concern the applied technical aspect of the game, while the latter focus more on the conditional abilities associated with the game (strength, endurance and speed), biomechanics and energy recruitment mechanisms. As for the executive part, the qualitative aspects require a good degree of development of the technical-coordinative capacities, which are divided into literature in special coordination capacities and general coordination skills. In this study we will see how coordination is a component strongly linked to football, but above all to its qualitative aspects, through tests administered to a group of young soccer players.

**Key words:** coordination capacity, ball control, ball transmission.

### Introduction

To perform any motor gesture in an optimal way, the subject must increase the so-called "coordination skills" which are divided into the basic and special ones (D'Isanto T. et al., 2019). In the latter there must be a solid base, composed of a good motor development and an adequate development of the nervous system that allows information to be processed (D'Elia, 2019). Furthermore, we know that coordination is an external manifestation of nervous system functions and is therefore influenced by both environmental changes and inheritance (Altavilla G. et al, 2015). By definition, coordinated skills are the set of those skills used to learn, control and organize (adapt and transform) a movement. They form the basis for learning and improving technical skills and are in close interaction with conditional skills.

The maximum development of these abilities is in the age group between seven and thirteen years (Stratz C.H., 1904). In this work we aim to focus attention on the existing interaction between coordination and some basic foundations of football (Donders, 1960). To do this, we will use field tests, which were administered to children aged 11 to 12 years, in order to allow the coach to work both on the technical gesture and on the coordination of the boy, making changes in case of need (Altavilla G. et al., 2018).

### Methods and Materials

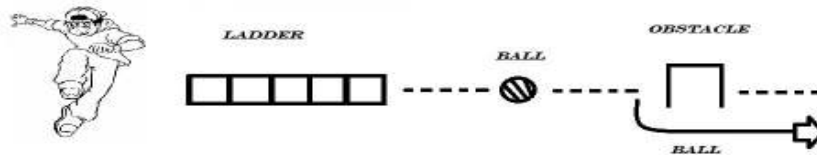
#### Subjects

The subjects on which this study was conducted, are 12 boys aged 11 to 12 years, who are part of the U.S. Salernitana 1919, with which we played the CSI under-10 category championship.

#### Experimental design

The objective of this work is to understand if the idea of tests concerning both the coordination and the qualitative aspects of football can be useful to understand which strengths or weaknesses exist in a boy who plays soccer (Raiola G., 2015). The tests focus mainly on the control a boy has of his own body, thanks to the development of the mind and the acquisition of the body scheme. But since in this sport there is also the addition of the ball it is possible to analyze and evaluate also the technical gesture of the objective (Rago V. Et al., 2017). The study in question focuses mainly on three types of field tests. Once executed, the collected data will be evaluated and tabulated with the appropriate scores and table preparation.

The first test consists of a path in which the subject must first pass a ladder placed in front of him using a low jump obviously during the jump the feet must not touch the instrument otherwise there will be a penalty. After the first step the subject leads the ball a couple of meters towards an obstacle where the ball will have to pass laterally and the subject will have to climb over it. Each subject will start with 10 points on the scale there are 5 points each touch on one of them removes a point, if you lose control of the ball adjacent to the obstacle you lose 2 points if the obstacle falls you lose 3 points. The ranges for the scores will be the following: 10 = perfect; 8-9 = good; 6-7 = sufficient; 4-5 = middling; 0-3 = insufficient..



In the second test, however, the subject must perform jumps on foot united from one circle to the other, arranged in front of him, in total the circles are 5 placed diagonally from each other. After the first step, the subject reaches a ball with which he will have to perform a dribble of 5 obstacles. Here too the subject starts with a score of 10 points, any mistake between circles or obstacles will remove 1 point from the total. The ranges for the scores will be the following: 10 = perfect; 8-9 = good; 6-7 = sufficient; 4-5 = middling; 0-3 = insufficient..



Finally, the third and final test remains. In the latter case the subject must remain balanced on a jellyfish for 6 seconds (3 points will arrive if the time is less than 6 seconds), once the 6 seconds have expired he will have to go down and perform a somersault (in case of error they will be subtracted 3 points), which can be defined as correct if the subject is able to get up quickly afterwards. After completing the somersault, the subject performs an 8 meter ball transmission, thus placing the ball in a small door (in case of error 4 points are subtracted).



At the end of the tests we applied the statistics. First we used ANOVA, also called variance analysis, it is nothing more than the set of statistical techniques that are part of the inferential statistics that allow you to compare two or more groups of data by comparing the internal variability in these groups with the variability between groups. These techniques are used when the explanatory variables are nominal (discrete). Nothing prevents us from using these techniques even in the presence of ordinal or continuous explanatory variables, but in this case they are less efficient than alternative techniques. After the study we noticed that there isn't significant difference between the three test groups detected ( $p=0.663$ ). Therefore the Pearson correlation between two statistical variables was used and can be defined as an index that expresses a possible linearity relationship between them.

- We have noticed various correlations, including:
- The correlation is significant at the level 0,05 (with two tails).
- The correlation between Var1 and Var2 was discrete 0.530..
- The correlation between Var2 and Var3 was good 0.796.
- The correlation between Var3 and Var1 was discrete 0.653

**Results**

Table 1. Ball coordination and control.

PLAYERS	LADDER (MAX -5)	OBSTACLE(MAX-5)	TOTAL
PLAYER 1	10-0=0	10-2=8	8
PLAYER 2	10-1=9	9-0=9	9
PLAYER 3	10-0=10	10-0=10	10
PLAYER 4	10-0=10	10-0=10	10
PLAYER 5	10-0=10	10-0=10	10
PLAYER 6	10-3=7	7-2=5	5
PLAYER 7	10-2=8	8-2=6	6
PLAYER 8	10-0=0	10-3=7	7
PLAYER 9	10-4=6	6-0=6	6
PLAYER 10	10-0=10	10-0=10	10
PLAYER 11	10-0=0	10-2=8	8
PLAYER 12	10-3=7	7-3=4	4

As we can see from the results, the situation is positive, we have some players who performed the test perfectly, while only a few made mistakes. Only player 12 was inadequate and it will be necessary to do a job before the coordination and then on the fundamentals. There is also someone who was perfect on coordination, but lost points in the second step with the control of the ball.

Table 2.Coordination in jumping and dribbling.

PLAYERS	JUMP (MAX -5)	DRIBBLING (MAX-5)	TOTAL
PLAYER 1	10-2=8	8-0=8	8
PLAYER 2	10-0=10	10-0=10	10
PLAYER 3	10-1=9	9-0=0	9
PLAYER 4	10-1=0	9-1=8	8
PLAYER 5	10-3=7	7-2=5	5
PLAYER 6	10-3=7	7-3=4	4
PLAYER 7	10-1=9	9-3=6	6
PLAYER 8	10-0=10	10-0=10	10
PLAYER 9	10-1=9	9-0=9	9
PLAYER 10	10-0=10	10-1=9	9
PLAYER 11	10-0=10	10-0=10	10
PLAYER 12	10-3=7	7-4=3	3

In this test, the main difficulty was not to touch the edge of the circle during the landing after the jump, most of the points were lost for this reason. In dribbling they did quite well, although like in every test there is someone who sins more than another.

Table 3 Coordination and trasmission ball.

PLAYERS	JELLYFISH (MAX -3)	SOMERSAULT (MAX-3)	TRASMISSION BALL (-4)	TOTAL
PLAYER 1	10-0=10	10-3=7	7-0=0	7
PLAYER 2	10-0=10	10-0=10	10-0=10	10
PLAYER 3	10-0=10	10-0=10	10-0=10	10
PLAYER 4	10-3=7	7-3=4	4-0=4	4
PLAYER 5	10-0=10	10-3=7	7-0=7	7
PLAYER 6	10-3=7	7-0=0	7-4=3	3
PLAYER 7	10-0=10	10-3=7	7-0=7	7
PLAYER 8	10-3=7	7-0=7	7-0=7	7
PLAYER 9	10-0=10	10-3=7	7-0=7	7
PLAYER 10	10-0=10	10-0=10	10-0=10	10
PLAYER 11	10-0=10	10-0=10	10-0=10	10
PLAYER 12	10-3=7	7-3=4	4-4=0	0

In this test there was one factor that got most players into trouble, namely the somersault. Many of them were afraid or had never done it. Others, on the other hand, have had difficulty coordinating to maintain the jellyfish balance. Therewerefewerrors in transmission of the ball.

**ANOVA TEST**

	sum of squares	gl	quadraticmean	F	Sign.
Between groups	5,722	2	2,861	,416	,663
Within the groups	226,833	33	6,874		
Total	232,556	35			

There is no significant difference between the three test groups detected (p=0.663)

**Multiple Pearsoncorrelation**

		VAR00001	VAR00002	VAR00003
VAR00001	Pearsoncorrelation	1	,530	,653*
	Sign. (with twotails)		,076	,021
	N	12	12	12
VAR00002	Pearsoncorrelation	,530	1	,796*
	Sign. (with twotails)	,076		,002
	N	12	12	12
VAR00003	Correlazione di Pearson	,653*	,796*	1
	Sign. (with twotails)	,021	,002	
	N	12	12	12

\*. The correlation is significant at the level 0,05 (with two tails).

The correlation between Var1 and Var2 was discrete 0.530..

The correlation between Var2 and Var3 was good 0.796.

The correlation between Var3 and Var1 was discrete 0.653

**Discussion**

Unfortunately, coordination is not a capacity created overnight, but must be cultivated and trained with time and work. (Raiola G.,2017). So it is not only useful to make a technical gesture within a sport, but it can also be useful in everyday life (Valentini M. et al.,2018). Moreover, referring to the sporting part, it can prevent

a myriad of injuries caused precisely by a lack of coordination (Tiziana D. et al.,2017). In a sport before learning the fundamental or technical gesture, one must first work to make sure that each subject has control of his body and a good relationship between mind and body, so that he can develop and train coordination. The tests that have been developed can certainly be useful to the instructor on duty to understand the real state of the young player both at the level of coordination, and at the level of use in the performance of a fundamental (Cirillo G. et al.,2016). These tests can be used multiple times in a year to see if the methodologies used work or not (Raiola G. et al.,2016).

### Conclusion

Before this work, we asked ourselves the question, that is, if it was possible, through tests, to analyze and evaluate the processes and the execution of coordination within a young player, in relation therefore with some of the main foundations of football. After applying the tests and analyzing the results, we can certainly establish that these tests are very useful for any instructor who needs to understand the coordination status associated with the young player's fundamentals as soon as possible.

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