A METHOD FOR IDENTIFYING TALENT IN YOUTH FOOTBALL THROUGH THE USE OF EVALUATION TESTS

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Abstract
After an initial qualitative and quantitative test phase carried out in previous works, the aim of this study was to hypothesise tests that could evaluate the overall performance of the young player in search of greater systematicity in the approach. After an initial review of the literature, the research team chose three types of tests with the technical component, each of which involved the involvement of a fundamental specific calculation: T-drill Test (shooting), Loughbourough Soccer Passing Test (passage), Hoff Test (conduction). The first two tests focus only on the agility component, while the third also evaluates resistance as well as agility. These tests were then performed on a sample of 15 boys between the ages of 14 and 15 belonging to an amateur football school. The main results that emerged are: for the T-drill test an overall average time of 15 "73 (without corrections for goals scored) and 15"22 with corrections. For the LSP Test a time of 55 "53 in the first attempt, and 57"27 in the second attempt. Finally, in the Hoff test the boys travelled an average distance of 1609 m. By comparing the results obtained from the sample with the reference data in the literature, it is possible to examine the performance and skill level. These tests can also be used to identify talent in Youth sectors.

Key words: *agility, Loughbourough Soccer Passing Test , T-drill Test, Hoff Test.*

Introduction

Talent identification can be defined as the process of recognising current participants with the potential to become elite players (Williams & Reilly, 2000), whereas talent development aims at providing the most appropriate learning environment to realise this potential (Reilly et al., 2000). In recent years, the process of identifying young talent has become a significant issue in soccer (Carling et al., 2009; Reilly et al., 2000b). There has been an increasing emphasis in the use of science-based support systems offering a more holistic approach to talent identification in soccer (Reilly et al., 2000b; Waldron & Worsfold, 2010). Outcome measures stemming from physiological (Le Gall et al., 2010), anthropometrical (Gil et al.,, 2007), psychological (Williams, 2000), sociological (Meylan et al., 2010) and technical skills (Figueiredo et al., 2009) have all been used, in either isolation or combination as predictors of expertise and talent development. As indicated in the literature, the youth's talent potential is not a stable trait but is constantly evolving throughout the developmental phases (Vaeyens et al., 2008). It should be a continuous procedure, and form the initial stage of a dynamic talent development model (Burgess & Naughton, 2010). Many of the characteristics that discriminate elite and sub-elite players may not come to fruition until late adolescence, confounding the early selection of performers (Williams & Reilly, 2000). As such, talent identification and talent development should reflect the long-term athlete development perspective, as opposed to short-term success (Burgess & Naughton, 2010; Reilly et al., 2000b). From a didactic point of view, the improvement of the player from a technical-tactical point of view and under that inherent to the development of his dexterity, for the purposes of the game, cannot be separated from the position and attitude of the comrades, as we ll as from the location and behavior of opponents (Rosso, 2018). Although the training is mainly oriented towards exercises, ie proposals closely related to the game situations, it is a mistake not to work on the execution of different gestures, ie without the presence of the opponent, to improve the man-ball relationship; thing, this is essential to be able to manage the ball in the game situations themselves (Gaetano et al., 2014). From the youth sector, therefore, it is necessary to train memory, perception, concentration skills and situation analysis (Raiola et al., 2018). Therefore, soccer requires skills to be performed under pressure in a rapidly changing environment, with constant restrictions in time and space (Vaeyens et al., 2006). In order to investigate the factors that determine the performance, various approaches are used, which aim to obtain the greatest possible amount of information, measuring one or more representative variable quantities of one or more qualities, or aspects that are in some way related to the performance itself (Raiola, 2019ab, Raiola, 2017; Di Domenico et al., 2019). In this case attention has been paid to functional evaluation, which is the prerequisite for training control (D'Isanto et al., 2019¸Valentini et al., 2018). The tests serve for a kind of photograph of the situation that will highlight various things, and here the coach must be able to observe and understand the needs of the young player to improve his shortcomings and enhance his qualities, and then helping to define the purposes necessary to set up the training

program. Several validated tests are currently in use to assess the players' performance and technical qualification (Ali, 2011). Moreover, given that many studies have largely established that the players' aerobic capacity substantially influences their technical performance and their tactical choices, the evaluation of the aerobic performance of soccer players should interest the coaches in order to better evaluate and plan their own resistance training sessions. Therefore, to reliably identify capability within a specific sport domain, a move towards a more game-specific protocol is warranted.

Aim

Starting from these notional ideas, in this study we set ourselves the objective of evaluating the overall performance of a sample of young players through the use of selected tests in literature. Tests are therefore suitable not only for assessing the technical-enabling level but also for assessing aerobic performance. The motivation is to know the average objective and overall level of the players and to continually question the method used in the training and the content of the proposals. However, aware of the discrepancy of the results that can be had between the sample under examination, characterized by 15 amateurs players between the ages of 14 and 15 belonging to a football Academy, and the absolute reference values inherent to the youth elite categories (Chaalali et al., 2016; Chamari et al., 2004, 2005).

Materials and methods

Unlike previous works (Esposito et al., 2019a; 2019b) of a purely quantitative and qualitative nature, in which an attempt was made to devise original tests that could be significant for the purpose defined above, in this case neither innovation nor originality was sought, but a greater rigor and a systematic approach. The greatest difficulty was finding consistent and meaningful protocols that could be proposed to an age group in the youth sector that did not require the use of tools that were not easy to find. After a first phase of archive research with a documentary approach in the existing literature, the choice fell on three types of tests with technical component, each of which involved the involvement of a specific fundamental football: T-drill Test (shooting), Loughbourough Soccer Passing Test (passage), Hoff Test (conduction).

The first two tests focus only on the agility component, while the third tests resistance as well as agility. The tests were carried out individually in different days. Results were obtained after a period of familiarization with the tests lasting about 2 weeks. Following is the analytical description of the three tests with relative images to understand the preparation of the path and the testing protocol.

T-drill Test

The T-drill Test, it is one of the most used tests in the world to measure agility in sports games: it measures the ability to accelerate, decelerate and change direction in a short space. In this case a variant of the classic Test T proposed by Kutlu et al., (2012) is proposed, which involves kicking the ball instead of touching the cones. This implies that to the components of speed, acceleration and change of direction, we add those of technique and those related to decision-making and cognitive skills specific to kicking on goal.

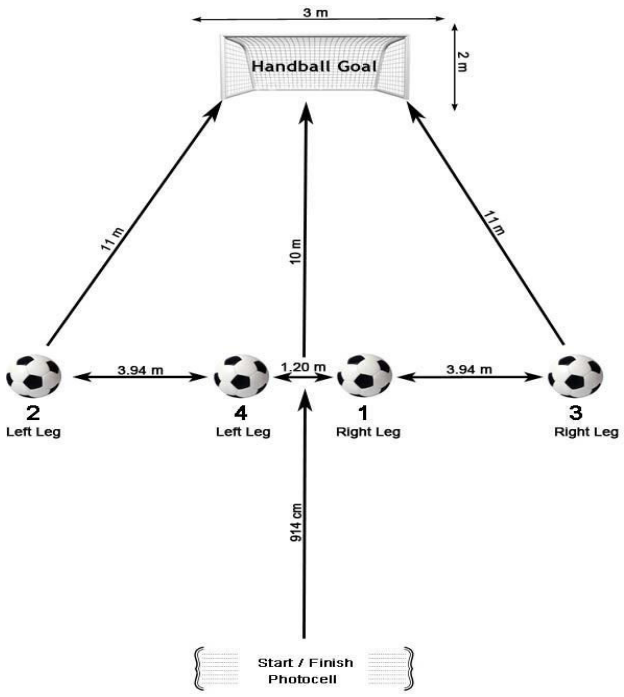

Figure 1. Image taken from "*Comparison of a New Test For Agility and Skill in Soccer With Other Agility Tests"* by Mehmet Kutlu et al., Journal of Human Kinetics volume 33/2012, 143-150.

Fig.1 shows the path of the T-drill test where initially the player is standing with his feet behind the starting line, and at a start signal of the coach he runs accelerating forward to reach the line set at 9.14 m distance. Kick a ball with the right foot to 0.6 m on the right, trying to center the door 10 m away. Immediately afterwards, the player moves with side steps to the left towards another ball at 5.14 m distance from the first one, to shoot with the left foot in the door, which is 11 m away. Then with lateral steps he moves to the right reaching the third ball, placed at 9.08 m from the second. He also kicks this into the goal with his right, finally back towards the center with side steps to the left, to pull with the left foot the fourth ball which is 5.14 m from the third. Finally it runs backwards covering the 9.14 m that separate it from the start / finish line. The time taken to perform the test is measured, to which it is subtracted:

- 1 sec. If all four balls end up in the net;
- 0.75 sec. If the player scores 3 goals;
- 0.50 sec. If the player scores two;
- 0.25 sec. If the player scores only one.

Loughbourough Soccer Passing Test

The Loughbourough Soccer Passing Test (LSPT) is a reliable and validated test, which evaluates aspects of football skills including passages, dribbling, control and decision making (Le Moal et al., 2014).

The authors observed that elite male and female players achieved significantly better results than their non-elite counterparts, confirming the validity of the test criterion.

Since the talent identification process takes place between the ages of 12 and 15 [44], it is important to know if the LSPT is appropriate to the skill of teenage players. O'Regan et al. (2006) used a modified version of the LSPT because the original test conditions were not suitable for their players (aged 12 or over).

However, for better comparison and performance monitoring between young and adult players, it may be better to maintain the same conditions as the original LSPT.

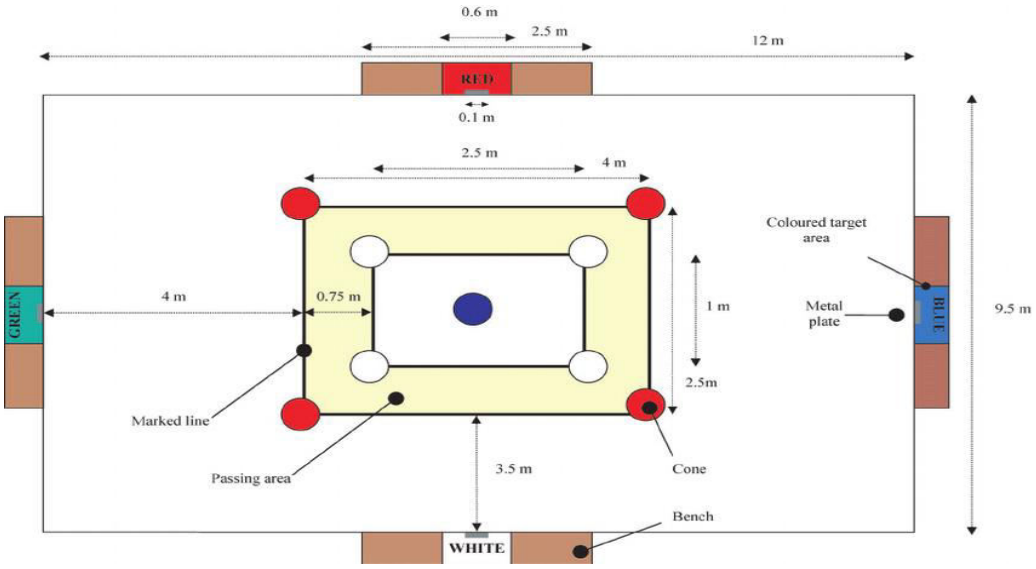

Figure 2. Image taken from "*Validation of the Loughborough Soccer Passing Test in Young Soccer Players*" by Le Moal et al., Journal of Strength and Conditioning Research: May 2014 - Volume 28 - Issue 5 - p 1418–26

Fig.2 shows the scheme of the Loughbourough Soccer Passing Test. Initially a rectangle of 12 m (long side) x 9.5 (short side) is drawn. Inside there are two other concentric rectangles, one of 4 x 2.5 m, the other of 2.5 m x 1 m, so that the smaller rectangle is surrounded by a corridor 0.75 m wide. A cone is placed at each corner; in addition, another pin is positioned in the center of the smaller rectangle. On the outermost perimeter, in the central area of each side, there is a rectangle, 2.5 m long and 30 cm high, with a 1 m long colored area in the middle. A target formed by a 30 cm wide metal plate is inside a target area with 60 cm x 30 cm sides. 16 passages must be made, of which 8 passages of 3.5 m, towards the long sides of the outer rectangle (red and white colors) and 8 passages of 4 m towards the short sides (blue and green colors) trying to hit the metal target. The test requires two operators, one controlling the time, the other indicating the target that the player must hit with the ball, calling a color with a predetermined sequence, but which is randomly defined so that the player can never know the succession of targets to hit. Passages must be made from the corridor between the two internal rectangles and the return ball, after having bounced off the colored rectangles, must return to the central one, towards the central cone, before being kicked against a new target called by the operator . The test begins with the player entering the corridor and ends after making the 16 passes in a maximum time of 43 seconds. The performance is measured in seconds, giving the following penalties / bonuses:

- 5 seconds if the player does not hit the rectangle or hits the wrong rectangle
- 3 seconds if the player touches the ball with his hands
- 3 seconds if it does not hit the target area (69 x 30 cm)
- 2 seconds if the ball is not kicked into the corridor
- 2 seconds seconds if the ball hits one of the cones
- 1 seconds second for every second more than the maximum time of 43 seconds
- 1 seconds bonus for each target metal hit

Performance is measured through:

1. The total time taken to complete the 16 passages
2. The time resulting from the calculation of penalties and bonuses
3. The total time calculated from the difference between the two previous parameters
4. Players perform two trial and the average is calculated

Hoff Test

The Hoff Test, proposed by Chamari et al., (2005) as elaboration of the resistance training exercise, introduced by Hoff, in order to obtain a path of 290 m that the player must travel continuously for 10 minutes in order to cover the maximum possible distance. It is a test with a technical component, takes place on the playing field and assesses agility as well as resistance. The test is related to maximum aerobic power.

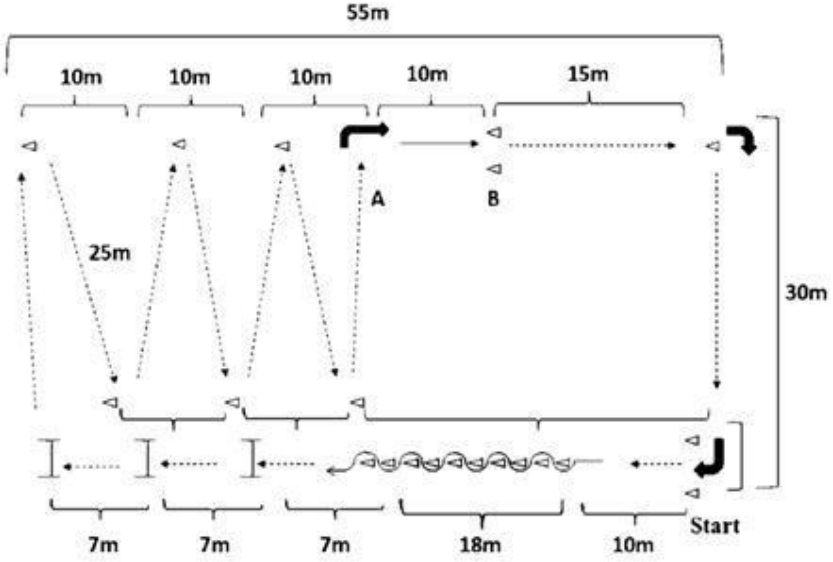

Figure 3. Image taken from "*Endurance training and testing with the ball in young elite soccer players*." By Chamari, K., et al., *British journal of sports medicine* 39.1 (2005): 24-28.

Fig.3 shows the path of the Hoff Test. There it's possible to test up to 5 players simultaneously, starting them at a distance of 1 minute. The route is shown in the figure. The player must bring the ball forward from the starting point, making a slalom between 10 cones arranged in a straight line at 12 m from the start and 2 m apart from each other.

Then he continues to run and jumps three obstacles 30-35 cm high, placed at 7 m from each other. Once the third obstacle has jumped, the player makes a change in direction of about 90 ° to the right and head towards a cone 30.5 cm from the obstacle; performs a change of direction to the right of just under 180° to head towards another cone at 25.5 meters.

So it continues performing changes of direction up to the seventh cone from where, in possession of the ball, but going backwards, it tries to reach a door (made with two cones) at 10 m, from which it proceeds in conduction, but this forward for another 15 m. Then it makes a final 90 ° change of direction to return to the starting door. The path is traced on the playing field and is 51.5 m long on the side where the ten cones for the slalom and the three obstacles are placed, 55 m from the other and is 35 m wide. In total the player must travel 290 m for each lap.

Results

Tab.1 shows the shows the results of the first test concerning the execution of the T-drill test. In the second column is reported only the time taken by each boy to complete the test without taking into account the bonuses provided by the protocol regarding the number of goals scored. It is in the third column that these bonuses are taken into account, where they are respectively reduced to the total execution time.

Tab. 2 shows the values obtained by the sample of Pontecagnano boys. The table is structured as described above:

- In the second and in the fifth column the total time to use the 16 steps in the two foreseen attempts (trial 1 and trial 2)
- In the third and in the sixth column the time resulting from the calculation of penalties and bonuses (penalty 1 and penalty 2)
- In the fourth and seventh columns the total time calculated from the difference between the two parameters described above (Global performance 1 and Global performance 2)

For each column the average overall time of the sample was obtained as indicated in the last row of the table (Average).

Table 1. Results obtained from the sample in the T-drill Test**.**

Player 1	18,38	16,32
Player 2	16,15	16,05
Player 3	17,45	15,30
Player 4	15,23	14,63
Player 5	14,65	13,50
Player 6	16,53	17,42
Player 7	14,34	16,27
Player 8	16,18	15,27
Player 9	16,03	15,33
Player 10	15,25	15,39
Player 11	17,23	16,32
Player 12	15,34	12,68
Player 13	13,76	14,16
Player 14	15,34	16,21
Player 15	14,21	14,15
Average	15,73	15,26

Table 2. Results obtained from the sample in the Loughbourough Soccer Passing Test.

Players	Trial 1	Penalty time 1	Global performance 1	Trial 2	Penalty time 2	Global performance 2
Players 1	46,15	6	52,15	46,55	9	54,55
Players 2	47,21	10	57,21	48,38	10	58,48
Players 3	45,76	9	54,76	47,32	7	54,32
Players 4	49,74	6	55,74	51,84	13	63,84
Players 5	49,93	9	58,93	48,21	10	58,21
Players 6	51,12	11	62,12	48,98	9	57,98
Players 7	48,15	8	56,15	49,83	8	57,83
Players 8	43,67	7	50,67	47,03	11	58,03
Players 9	48,31	10	58,31	46,24	6	52,24
Players 10	48,31	8	56,31	48,02	10	58,02
Players 11	46,74	10	56,74	47,23	8	55,23
Players 12	45,28	6	51,28	49,85	11	60,85
Players 13	46,82	6	52,82	48,15	10	58,15
Players 14	48,23	6	54,23	46,90	6	52,9
Players 15	48,57	7	55,57	49,45	9	58,45
Average	47,59	7,93	55,53	48,27	9,13	57,27

Table 3. Results obtained from the sample in the Hoff Test.

Player	Distance travelled (m)
Players 1	1530,5
Players 2	1512,5
Players 3	1509
Players 4	1830,5
Players 5	1512,5
Players 6	1684
Players 7	1602,5
Players 8	1717,5
Players 9	1428,5
Players 10	1837
Players 11	1634
Players 12	1609
Players 13	1732,5
Players 14	1528
Players 15	1468
Average	1609,06

Finally**,** Tab.3 shows the results obtained by the sample in the Hoff test where the actual distance covered during the test is indicated for each boy in 10 minutes.

Discussion and conclusion

The testing, through the use of these validated protocols, has made it possible to systematize the observation and to ascertain the presence or absence of a specific skill or technical gesture in the boy's repertoire (abilities and individual behaviors) without making value judgments subjective (Altavilla et al., 2017). The coach can acquire precise observable and measurable points of reference, on which to build training programs aimed at increasing the skills and competences of the player (D'Elia et al., 2019).

Going into the details, wanting to focus on the first test (T-drill test), we were evaluating the boy's ability to perform rapid repeated sprints with changes of direction and to shoot at the goal with a firm decision-making ability. In this case the attention was not aimed at finding the error in the execution of the movement or in the shot, that is on the executive model of the engine. The boy was not forced to kick to the right or to the left or with a specific anatomical part of the foot, he was simply asked to achieve a certain goal, that is to try to execute the shots on goal in succession as quickly as possible moving laterally. So he was told only what to do, not the best way to do it; it depended on them to make the best decisions about which foot to use depending on their attitudes or preferences. Overall, some reasonable execution times were obtained in the tests, but the inability or unwillingness of young people to use their weak foot to kick emerged clearly, preferring in most cases to perform even unnatural and non-harmonic movements to pull in the door. All the indications to take into consideration when planning future sessions. While in the research of Kutlu et al. (2012) the sample of players had taken an average time of 12.36 seconds in the test without correction for the goals scored and 11.70 seconds in the test with correction, in this study the sample under examination took an average total time of 15.53 seconds in the test without correction for the goals scored and 14.7 seconds in the proof with correction. In conclusion, this test provide for the trainers the opportunity to assess their players in terms of quick and proper decision making and to provide further training solution for low-level soccer players.

The second test (LSPT) was aimed at assessing the ability of the players to perform repeated, as accurate as possible, passages in a "stressful" situation as in a time trial that included several penalties. They were asked not only a lot of attention in making the passage in the area that was indicated, but also a good space-time and decision-making capacity. Many times exercises are proposed concerning the transmission at excessively slow rhythms, with little rhythm, in an extremely predictable and controllable environment. This justifies the way in which the percentage of successful passages decreases dramatically in the game because the boys are not able to find the right timing in the execution or to manage the nervous push of the opponent. It is what clearly emerged in this process, which is the small attitude of being rational in a moment of high unpredictability characterized by perturbations. The element of time was significant. If in the execution of the non-timed test, the pass rate was about 12-13 corrected to 16, with the test it dropped to about 6-7 correct out of 16 and in the worst case 4 out of 16. As soccer-playing ability was perceived to be higher with the highest playing level, these scores highlight the construct validity of the LSPT. Because of the few studies that have used the LSPT in young player, it is difficult to compare our findings. In conclusion we can say that the LSPT is a reliable method of examining soccer skill performance in young players. It is also ablte to distinguish players of different playing levels with minimal familiarization.

Finally, the third test (Hoff test) analyzed the player's aerobic performance with technical exercises through a specific dribbling circuit. In the Hoff circuit, so in addition to the physical parameters, a specific good technical skill was needed to allow the player to perform the test in a shorter time. Hence the use of the ball, which is certainly a fundamental motivational point for performing this test. Previous studies [Hoff et al., 2002; Helgerud et al., 2001) have concluded that all players who covered more than 2100 meters in the Hoff test had a VO 2max> 200 ml / kg 0.75 / min., and those that ran <1900 meters had <200 ml / kg 0 , 75 / min., which was suggested as a minimum value for active soccer players. Therefore, these authors suggested that the goal of the Hoff test should be to make U-15 (elite) players run at a distance > 2100 meters in the 10-minute test (Rosch et al., 2000; Zagatto et al., 2015). This corresponded to about 7 laps of the track. It is clear that since this test was performed on a sample of amateur players it was foreseeable to obtain a distance significantly lower than that indicated by these authors (Rago et al., 2017). The objective was to understand how was different from this value but above all how much the onset of fatigue affected the execution of the technical gesture. A picture that was not totally negative emerged, indeed in some cases there was a positive response with regard to the goodness of the work carried out previously. Certainly in subsequent studies it will be necessary to evaluate possible improvements in the test and verify what the authors have proposed, that is that the recurrent execution of this test implies an effective improvement to the running economy and to the maximum absorption of oxygen

Through this research work, it was possible to see how tests are an indispensable control tool. In many tests and articles dealing with functional evaluation, reference is made to the physiological

profile of the footballer. The analysis of literature data and practical experience in the field show that there is a great variability in the physical and physiological characteristics of the players. However, all this information is useful to understand the importance of certain physical and physiological factors for performance (Ferrari, 2019). Furthermore, we need to take into account the role-based differences, each with well-defined technical and tactical characteristics.

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