



# Identify the Tests to Measure Physical Characteristics and Basic Skills for the Football Players in Iraq

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## Abstract

**Background:** Basic skills specification and physical characteristics are the most significant factors for Football players. **Objective:** This research aims to determine the most relevant tests to examine the basic skills and physical characteristics for the football coaches in Karbala. **Methods:** The participants of this study includes 92 Football player (body weight  $68\pm 16$  kg (mean $\pm$ SD), height  $172.5\pm 17.5$  cm, age  $21\pm 3$  year ) who were chosen from the 4 clubs in Karbala, Iraq. **Methods:** To choose the appropriate tests for basic skills and physical characteristics the opinion of the experts was used followed by 2 questionnaires, scored from 1 to 5. The tests were recommended for this study and the questionnaire consisted of seven items. The researcher adapted the questionnaires from previous studies. **Results:** The findings of questionnaires revealed that vertical jump and dribbling 25 m, sit down and stand up, Nelson reaction, 30 m sprint, passing with wall and Shuttle test are chosen to test the Physical characteristics in football, whereas, accuracy test for shooting, heading the ball, competitor evasion, receiving ball, zigzag dribbling and passing accuracy are chosen to test basic skills in football. **Conclusion:** The tests which were chosen in this study can be adopted by coaches as a practical way in Karbala and other regions in Iraq and also in other countries. The experts can use the findings of these tests and compare professional athletes and other football players.

**Keywords:** physical characteristics; anthropometric parameters; Basic skills; football

## 1. Introduction

Football is the most popular game in the world, which is why numerous male and female athletes, adults and young, professionals and amateurs participate in this sport (Duke & Crolley, 2014; Giulianotti, 2012). In addition to footballers' technical skills and fitness, physical indicators (Horton, Gudmundsson, Chawla, & Estephan, 2015) and body composition have a significant role in effective performance (Vitale et al., 2016). Today, it is getting more and more famous so enormous number of people is attracted to play football particularly young people (Chen & Reams, 2013). Most of countries in Asia, such as Saudia, Singapore, Korea and Japan are using the standard and the newest exercise training methods to examine their players abilities so that they can increase the level of their football as much as Europe countries (Horne & Manzenreiter, 2013). It is important to know the appropriate tests to examine the physical characteristics (power, speed endurance, performance speed, transition speed, reaction speed, agility and explosive strength), and basic skills (controlling, passing, dribbling, receiving, evasion, shooting and head kick), since these are the most significant football component (Carlsson-Wall, Kraus, & Messner, 2016). Then, regarding these tests, appropriate exercise training can be designed by the coaches. Accurate and precise tests provide the coaches with this opportunity to compare their players with other players or standard norms (Afzalpour et al., 2016; Brahim, Bougatfa, & Mohamed, 2013; Chalmers & Magarey, 2015; Hoyo et al., 2016).

Iraq an Asian country, is recently trying to progress their football players knowledge and level by hiring foreign coaches and moving based on the international rules. But still there is not sufficient information about the findings and the focus

of most of the researches is mainly on financial or management attitudes (Cho, 2013; Ghrairi, Chomier, Khelifa, & Ferret, 2013). Still there is not a series of tests standard to measure physical basic skills and characteristics in football. The article published in 2013 which was conducted by Ghrairi et al. as the latest article, recognized formation of periodization of Iraq elite football players' sport training and also perfection scientific-methodic basis of Iraq football players' training procedure management was formed (Ghrairi et al., 2013). However, still there is no study about the essential factors that can influence the players and their performance including their basic skills and physical characteristics. Now, there are many tests to examine the basic skills and physical characteristics (Reeves, Varakamin, & Henry, 1996; Rice, 2016), but there isn't an appropriate test to measure coaches in Karbala so they just rely on previous experiences, and also various tests are used by different coaches. For instance, Dribbling 25 m between cones (time), 30 m sprint test (time), Sit down, Passing with the wall (repeat in time), stand up and jump to top in 30 sec (repeat), Vertical jump, Nelson reaction speed test (time), Shuttle test 40 m × 5 (time), are the test used to measure physical characteristics and some tests including sense of the ball test, passing accuracy test, and zigzag test measure basic skills (Hammouda et al., 2013; Qusted et al., 2013). Therefore, to measure basic skills and physical characteristics for football, it is essential to select the most appropriate tests which is agreeable by all the coaches. So if the standard tests is available, profiling the sport athletes basic skills and also their physical characteristics is a critical tool to identify their talent and is valuable to develop physical characteristics and skills of individuals in football, besides, it can help design a suitable program for Iraqi football players (Carlsson-Wall et al., 2016). Thus, the aim of this research is to find the most suitable tests for the coaches so they can measure the football players' basic skills and physical parameters.

## 2. Methods

### 2.1 Study design

The design of this study focused upon coach agreement about the tests in a survey. The sampling was done intentionally and according to existing Karbala province's football clubs. Hence, the first separation clubs were chosen since all the clubs (Al-hindiea club, Al-gadharah club, Al-hur club and Al-jamaher club) are practicing to be prepared for the new season (2015-2016).

### 2.2 Participation

The participants of this research were male Football players (age  $21 \pm 3$  yr, body weight  $68 \pm 16$  kg (mean  $\pm$  SD), height  $172.5 \pm 17.5$  cm). A total number of 114 football players were chosen from four clubs ( $n=114$ ) but since 12 players and the 10 goalkeepers were injured the number decreased to  $n=92$  (Idrovo Robelo & Vaca Catute, 2013). Table 1 illustrates the Number of players regarding their positions and clubs. The sample included various play positions such as offensive, midfield and defense. Before the selection of subjects, a medical history was completed by the participants, an informed agreement form was also signed which was based on the Helsinki Declaration ethical guidelines relating to the use of human participants in medical research (Kargarfard, Shariat, et al., 2015). The Human Research Ethics Committee of University Putra Malaysia (FPP (EXP15) P098) approved the experimental process.

Table 1. the number of the players according to playing position for each club

| Sequence | Name of team     | Defense | Midfield | offensive | Total |
|----------|------------------|---------|----------|-----------|-------|
| 1        | Al-Jamaher Club  | 9       | 10       | 4         | 23    |
| 2        | Al-Hur Club      | 6       | 11       | 6         | 23    |
| 3        | Al-Gadharah Club | 9       | 10       | 4         | 23    |
| 4        | Al-Hindiea Club  | 9       | 11       | 3         | 23    |
| 5        | Total            | 33      | 42       | 17        | 92    |

### 2.3 Procedure

The researcher adopted and modified two questionnaires from the previous researches. the experts' opinion was collected for the reliability and validity of this questionnaire, also the previous methods were followed which were done for reliability and validity purpose (Shariat, Tamrin, Arumugam, & Ramasamy, 2016; Snyderman & Rothman, 1987; Walton, 2016). Five levels of scoring were included respectively as: unimportant, little important, moderately important, important, and very important. The professionals were asked to select the appropriate tests regarding these scoring. the questionnaire included 7 questions for physical characteristics and 7 for basic skills and for any item 3 tests types were designed based on the previous researches (Ingebrihtsen et al., 2014; Matuska, 2010). By selecting the best test from the other three the suitability of each test was assessed.

### 2.4 Statistical analysis

The data collected from this stage was entered to Excel sheet and the total rank for each test were calculated (Min = 0, Max = 15). The next phase converted total score to percentage. Based on the endpoint of 70%, each variable was assigned with a test related to basic skill (Kargarfard, Lam, et al., 2015; Narizuka, Yamamoto, & Yamazaki, 2014).

### 3. Results

The findings of this research were based on the experts' answers in the questionnaires which are illustrated in Table 2 and 3. The physical characteristics' results are shown in table 2; the chosen test based on the questionnaires results is also shown in this table.

3 types of test were recommended for any physical characteristics which are shown in table 2; the bold font shows the agreements' highest level. There was significant difference among the agreement's rate ( $p < 0.05$ ) and agreement rate was higher than 70% in the chosen tests. The agility and reaction speed's test had the highest agreement rate (86.66%).

Table 2. Percentage of some specific physical characteristics tests according to the experts and specialists selection

| No. | Physical characteristics   | Candidate test by experts and specialists                | Percentage of the test |
|-----|----------------------------|--|------------------------|
| 1   | Speed endurance            | 1- Shuttle test 40 m × 5 (time)                          | 80.00%                 |
|     |                            | 2- 200 m run from standing (time)                        | 20.00%                 |
|     |                            | 3- Dribbling the ball 40 m × 5 (time)                    | 0%                     |
| 2   | Transition speed(sprint)   | 1- 50 m sprint test (time)                               | 13.33%                 |
|     |                            | 2- 40 m sprint test (time)                               | 13.33%                 |
|     |                            | 3- 30 m sprint test (time)                               | 73.33%                 |
| 3   | Performance speed          | 1- Passing with the wall (repeat in time)                | 80.00%                 |
|     |                            | 2- Dribbling the ball 30 m (time)                        | 13.33%                 |
|     |                            | 3- Head kick a hanging ball 5 times (time)               | 6.66%                  |
| 4   | Reaction speed             | 1- Total reaction speed for 3 sides (time)               | 13.33%                 |
|     |                            | 2- Nelson reaction speed test (time)                     | 86.66%                 |
|     |                            | 3- Total reaction speed for 4 sides (time)               | 0%                     |
| 5   | Power (AKA speed strength) | 1- Sit down, stand up and jump to top in 30 sec (repeat) | 73.33%                 |
|     |                            | 2- 3 long jumps and sequential(time)                     | 20.00%                 |
|     |                            | 3- Partridge for a maximum distance in 10 sec (distance) | 6.66%                  |
| 6   | Explosive strength         | 1- Long jump from stability                              | 13.33%                 |
|     |                            | 2- Vertical jump   | 80.00%                 |
|     |                            | 3- Squat jump  | 6.66%                  |
| 7   | Agility                    | 1- Dribbling 25 m between cones(time)                    | 86.66%                 |
|     |                            | 2- Shuttle test 30 m(time)                               | 13.33%                 |
|     |                            | 3- Zig-Zag run(time)                                     | 0%                     |

3 tests are shown in table 3; the bold font shows the most agreement for any basic skills. A significant difference was seen among the agreement rate ( $p < 0.05$ ). Agreement rate of the chosen tests was higher than 70%. Shooting and head kick had the highest agreement rate (93.33%).

Table 3. Percentage of basic skill tests according to experts and specialists selection

| No.      | Basic skills | Candidate test by experts and specialists                | Percentage |
|----------|--------------|--|------------|
| <b>1</b> | Passing      | 1- Long passing accuracy test.                           | 13.33%     |
|          |              | 2- Passing accuracy test toward a small goal over 10m.   | 86.66%     |
|          |              | 3- Passing accuracy test toward a circle 90 cm over 15 m | 0%         |
| <b>2</b> | Controlling  | 1- Sense of the ball test (distance).                    | 73.33%     |
|          |              | 2- Sense of the ball test (time).                        | 20.00%     |
|          |              | 3- Sense of theball test (repetition).                   | 6.66%      |
| <b>3</b> | Receiving    | 1- Receiving the ball in selected area test.             | 80.00%     |
|          |              | 2- Receiving the ball diversified test.                  | 13.33%     |
|          |              | 3- Receiving the ball by the upper part of the body.     | 6.66%      |

|   |           |  |        |
|---|-----------|--|--------|
| 4 | Dribbling | 1- Dribbling test in straight line.                              | 0%     |
|   |           | 2- Dribbling test zigzag.  | 73.33% |
|   |           | 3- Dribbling test around a circle                                | 20.00% |
| 5 | Evasion   | 1- Evasion test within 10m inside square.                        | 6.66%  |
|   |           | 2- Evasion test (striker elude defender to cross him).           | 13.33% |
|   |           | 3- Competitor evasion test to arrive the goal.                   | 80.00% |
| 6 | Head kick | 1- Heading the ball test to the farthest distance.               | 6.66%  |
|   |           | 2- Heading the ball test to a goal divided into squares 11m.     | 93.33% |
|   |           | 3- Heading the ball test to a small goal (120 cm x 100 cm).      | 0%     |
| 7 | Shooting  | 1- Accuracy test of shooting into a specific part of the goal.   | 6.66%  |
|   |           | 2- Accuracy test of shooting on a goal divided into squares 11m. | 93.33% |
|   |           | 3- Accuracy test of shooting on specific overlapping circles.    | 0%     |

#### 4. Discussion

The findings of this study confirmed that all the tests are not appropriate for the Iraqi football players, hence some of them seem to be more appropriate. Shuttle test 40 m × 5 (time), Passing with the wall (repeat in time), 30 m Sprint Test (time), Nelson Reaction Speed test (time), stand up, Sit down and jump to top in 30 sec (repeat), Dribbling 25 m between cones (time), Vertical jump were the practices which were selected for the physical characteristics. The findings of this research is consistent with the findings of a survey conducted by Mann in 2016 (Mann, Ivey, Mayhew, Schumacher, & Brechue, 2016). But that research was mostly based on agility tests and short spring, since they used different tests to understand the relationship between the two parameters. for Agility They heavily used Dribbling 25m between cones. similar findings go to Vitalle et al. in 2016 (Vitale et al., 2016). They compared Italian and American football players focusing on physical characteristics tests and also on NFL (National Football League) Combine Performance. Shuttle Run test was recommended for speed ability and for performance, speed passing with the wall was suggested. In 2015, to measure the explosive strength vertical jump test was used by Jacobson et al. (Jacobson, 2015). A study was conducted in 2016 by Johnston et al. (Johnston, Watsford, Austin, Pine, & Spurrs, 2016), this study was about movement profiles, match performance and events in Australian football players and measure the reaction speed, Nelson reaction test was used, stand up, sit-down and jump to top in 30 seconds was used to measure the power. Same as earlier researches, Shuttle test was used to measure the speed endurance, the findings of their study are in line with the results of this study. Based on the results of this study for basic skills, Sense of the ball test (distance), passing accuracy test toward a small goal over 10m, Receiving the ball in selected area test, Competitor evasion test to arrive the goal, dribbling test Zigzag, Accuracy test of shooting on a goal divided into squares 11m and Heading the ball test to a goal divided into squares 11m were selected. Giulianotti (2012) in his book mentioned football basic skills including shooting, receiving, controlling and passing; he also mentioned few other related tests including zigzag test, but no specific test was underlined for the skills separately (Giulianotti, 2012). Narizuka et al. (2014) talked about passing and stated that test of passing accuracy is the most appropriate test for this skill. Based on the athletes and experts' opinion this test was selected for passing from more than 4 various kinds of common tests and it supports the results of this study (Narizuka et al., 2014). Horton et al. (2015) explored the various types of football passing and talked about the available tests including passing accuracy test toward a small goal over 10 m, passing accuracy test toward a circle 90 cm over 15 m, and long passing accuracy test. Hence, this research did not underline the most appropriate test for any football skills (Horton et al., 2015), and due to this gap, the results of this study can help fill that gap. Dawson et al. (2004), in an important research conducted in Australia mentioned the significance of various types of football shooting as a significant ability for the football players and Accuracy test of shooting was used into a particular part of the goal, shooting accuracy test on a goal divided in squares 11m, and accuracy test of shooting on specific overlapping circles and, such as the findings of our research, they chose shooting accuracy test on a goal divided in squares 11m as the most appropriate test for shooting in football (Dawson, Hopkinson, Appleby, Stewart, & Roberts, 2004).

Generally, most of the previous studies supported our results but there wasn't any particular study that concentrates on various tests for various types of physical characteristics and basic skills among football players (Subramaniam, Gill, & Lim, 2014). This study didn't have enough budget and time to have overseas experts conduct this testing. Consequently, it is recommended that same study with same methods is carried out to know the experts' opinion and also to compare it with our findings. Moreover, it is important, to do further studies focusing on the elite athletes' opinions, that are still playing, and to compare their opinion with that of experts, who are coaching.

#### 5. Conclusion

The findings of this research talked about the most significant tests based on the opinion of the experts on physical

characteristics (Passing with the wall (repeat in time), Shuttle test 40 m × 5 (time), Vertical jump and Dribbling 25 m between cones(time), Nelson reaction speed test (time), 30 m sprint test (time), Sit down, stand up and jump to top in 30 sec (repeat)) and basic skills (Sense of the ball test (distance), passing accuracy test toward a small goal over 10m., dribbling test zigzag, receiving the ball in selected area test, Competitor evasion test to arrive the goal, accuracy test of shooting on a goal divided into squares 11m.and heading the ball test to a goal divided into squares 11m.) in football and recognized the most relevant tests. But it suggested that a future study is carried out to compare these findings by the recommended tests in the developed countries. It is also recommended to compare the knowledge and experience of athletes and coaches from various countries on these tests and parameters. As an applied massage, coaches in Iraq can use this paper as a valuable source to identify the most suitable test for basic skills and physical parameters among football players.

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