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SELECTION OF FITNESS AND TECHNICAL EVALUATION TESTS FOR MALE FOOTBALL PLAYERS AGED 15 TO 16 YEARS OLD IN BA RIA - VUNG TAU PROVINCE, VIETNAM

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Abstract:
This paper is written to select fitness and technical tests for male football players in the province of Ba Ria - Vung Tau who are between the ages of 15 and 16. The study executes three processes of document synthesis, interviews, and reliability assessment of each test by using traditional research methods in sports including reference materials, interviews, pedagogical tests, and statistical analysis. In order to evaluate the fitness and technical competence of young male football players in Ba Ria - Tau province, the research has chosen 09 tests (05 fitness tests and 04 technical tests): 15m sprint (s), 5x30m Running (s), Long jump (cm), Test Cooper (m), Doing a short throw-in without momentum (cm); Dribbling a ball to go through poles and shoot the goal (s), Juggling a ball with feet (times), Shooting a ball from a distance of 16.5 meters (times), Doing a standard pass (times).

Keywords: standards, tests, physical fitness, technique, football, Ba Ria - Vung Tau province

1. Introduction

In recent years, football success has been shown to be highly dependent on various physical, technical, tactical, and psychological factors [20]. Bangsbo [21] emphasized that for successful competitiveness, the development of speed, agility, and strength with a

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combination of aerobic and anaerobic (even maximal) abilities is important for successful, competitive football careers.

As soccer practice often involves tactics like parallel defense and attack, the position of each player also needs to be taken into account. To do it, players ought to possess a certain set of abilities and be in top physical condition. As seen in multiple studies employing various indicators, there are differences in how players are evaluated in which they are correlated with players' playing positions. According to Matkovi'c et al. [22], three factors—age, fitness, and stamina – directly affect the football performances of professional footballers. He also seems to affirm, nonetheless, that the effectiveness of football players and the intensity of fast movements during games are significantly influenced by their playing positions. Despite the values of these figures, the fact shows that there is a severe lack of research on adolescents, especially in the field of competition. It is widely believed that understanding how fitness metrics change in response to elite playing positions can enable young football players to improve their daily training and future performances.

Football is a direct combative sport; thus, players today are required to possess a high degree of technical and physical condition. As a result, modern football has utilized methods involving a large amount of movement to provide athletes with high physical strength and technical skills. However, engaging in training that involves a lot of movement requires a certain level of physical fitness and sports skills, so the first and foremost step is to accurately assess a football player's physical and technical competence. Based on accurate data about each player's current fitness and skills, their coach may adjust the volume of exercise given to the athletes, allowing him to evaluate each player's potential progress with high precision. It is believed to enhance the effectiveness of the training process. Given the significance of the issue, the authors have decided to make research on: "Selection of fitness and technical evaluation tests for male football players aged 15 to 16 years old in Ba Ria - Vung Tau province, Vietnam".

The goal of the study is to select both fitness and technical tests that are appropriate for 15-16-year-old male football athletes in Ba Ria - Vung Tau province.

2. Methodology

To achieve the goals, the writers have employed a range of standard research methods, including document references, questionnaires, interviews, pedagogical tests, and statistics.

Research subjects include 25 male football players aged 15-16 years old from Ba Ria - Vung Tau province.

Interviewees include 24 experts, referees, and managers with experience in football coaching.

3. Results

The following steps were applied to identify the descent tests for assessing the physical strengths and technical abilities of 15-16-year-old male football players in Ba Ria - Vung Tau province:

- **Step 1**: Collecting fitness and technical tests created by local and international scholars to measure athletes' fitness and skills in football.
- **Step 2**: Interviewing several experts, coaches, and sports officials who have a certain understanding of the fitness and technical tests for young football players.
- **Step 3**: Evaluating the chosen tests' reliability.

3.1. Collecting fitness and technical tests created by local and international scholars to measure athletes' fitness and skills in football

In order to develop a set of fitness and technical tests for male football athletes at the ages of 15 and 16 in Ba Ria - Vung Tau province, the authors have made a synthesis of fitness and technical tests developed by renowned sports researchers as follows: Alagich. R (1998) [1], Nguyen Van Ba (2009) [2], Duong Nghiep Chi et al (2004) [3], Nguyen Dang Chieu (2006) [4], Nguyen Van Dung, Vu Thai Hong (2007)) [5], Bui Quang Hai et al (2009) [6], Duong Van Hien (2008, 2018) [7] [8], Tran Duy Hoa (2012) [9], Nguyen Trong Loi (2004) [10], Nguyen Duc Nham (2005) [12], Pham Quang (2004) [14], Pham Xuan Thanh (2007) [15], Nguyen Thiet Tinh (1997) [16], Nguyen The Truyen - Nguyen Kim Minh - Tran Quoc Tuan (2002) [17], Pham Ngoc Vien et al. (2004) [18], etc. The synthesis and classification have shown popular assessing tests of the physical strength and technical skills of young football players; however, it is spotted that some tests have remained controversial among experts.

The study followed the following principles to perform the selection of fitness and technical ability tests for male football athletes aged 15-16 in Ba Ria - Vung Tau province:

- Selecting the tests that at least 50% of scholars (or more) utilize.
- Selecting the tests that are little utilized yet appropriate for football's qualities and the local environment.

Based on the two aforementioned criteria, the research team has chosen some tests that are thought to be appropriate for male football players aged 15-16 in Ba Ria - Vung Tau province as follows:

a. Fitness tests

15m sprint (s), 30m sprint (s), 5x30m Running (s), Long jump (cm), High jump (cm), Test Cooper (m), Doing a short throw-in without momentum (cm).

b. Technical ability tests

Dribbling a ball to go through poles and shoot the goal (times), Juggling a ball with feet (times), 12 touch (rounds), Shooting a ball from a distance of 16.5 meters (times), Doing a standard pass (times), Doing a short throw-in with momentum (cm).

3.2. Interviewing a group of experts, coaches, and sports officials to determine tests of fitness and technical ability for 15-16-year-old football players in Ba Ria - Vung Tau province

The questionnaire was constructed based on the preceding outcomes, and interviews were done twice (first time: 24 individuals; second time: 22 individuals), one month apart, using the same assessment technique, test system, and subjects. The responses are supposed to be as follows: Very important: 5 points, important: 4 points, neutral: 3 points, very little important: 2 points, not important: 1 point.

There were 46 replies in all, with 31 experts' and coaches' opinions accounting for 67.39%, 11 referees' ones accounting for 23.91%, and 4 managers' ones accounting for 8.7%.

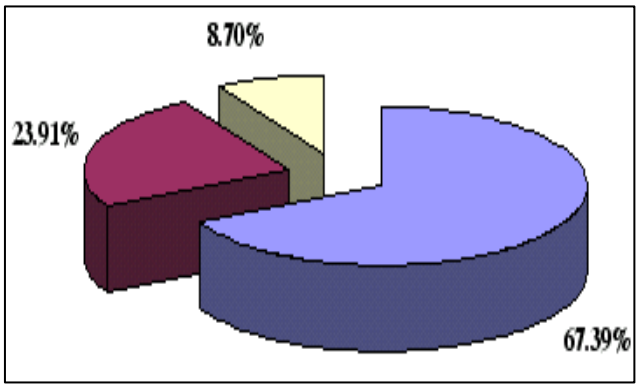

Chart 1: Interviewees

To test the coincidence of the two interviews' results, the authors conducted a comparison through the index χ^2 (squared) (Table 1).

Table 1: Comparison of the outcomes of two interviews on fitness and the technical ability of male football players aged 15-16 in Ba Ria - Vung Tau province

Test		1st n = 24		2nd n = 22		χ^2	P
		$\sum$ scores	%	$\sum$ scores	%		
Fitness	Long jump (cm)	108	90	100	90.91	0.02	> 0.05
	High jump (cm)	66	55.83	61	55.45	0.08	> 0.05
	Chạy 30 m xuất phát cao (s)	85	70.83	75	68.18	0.19	> 0.05
	15m sprint (s)	100	83.33	89	80.91	0.12	> 0.05
	5x30m Running (s)	109	90.83	96	87.27	0.11	> 0.05
	Test Cooper (m)	102	85	97	88.18	0.01	> 0.05
	Doing a short throw-in without momentum (cm)	95	79.17	89	80.91	0.03	> 0.05
Technical	Juggling a ball with feet (times)	118	98.33	109	99.09	0	> 0.05
	12 touch (rounds)	66	55.83	61	55.45	0.08	> 0.05
	Doing a standard pass (times)	109	90.83	96	87.27	0.11	> 0.05
	Dribbling a ball to go through poles and shoot the goal (times)	103	85.83	95	86.36	0.04	> 0.05

	Shooting a ball from a distance of 16.5 meters (times)	102	85	97	88.18	0.01	> 0.05
	Doing a short throw-in with momentum (cm)	85	70.83	75	68.18	0.19	> 0.05

Table 1 shows that all responses of two interviews have got χ^2 calculated < χ^2 table (= 3.84) at the probability threshold P > 0.05, indicating that the difference between the two observed mean values is not statistically significant. As a consequence, the interviewees involving football experts, coaches, referees, and managers have shown a high sense of consensus in their responses.

The writers conducted to select the tests with a total score of more than 75% of the total score in both interviews (1st time = 90 points, 2nd time = 82.5 points) based on the interview results. Following the set criteria, the study has chosen some tests to assess the technical skills and fitness quality of 15 - 16-year-old male football players in Ba Ria - Vung Tau province as follows:

- **Fitness tests:** 15m sprint (s), 5x30m Running (s), Long jump (cm), Test Cooper (m), Doing a short throw-in without momentum (cm).
- **Technical ability tests:** Dribbling a ball to go through poles and shoot the goal (s), Juggling a ball with feet (times), Shooting a ball from a distance of 16.5 meters (times), Doing a standard pass (times).

3.3. Test reliability

The study participants were engaged in two different assessments to measure the test reliability. The period between them was 5 days apart, and the test conditions between the two occasions were the same. The author then computed the correlation coefficient (r) of the contents, and the results were shown in Table 2.

If the correlation coefficient r > 0.8 and P < 0.05, the content is reliable enough.

If the correlation coefficient r < 0.8, the content is not reliable.

Table 2: Reliability coefficients of tests used to assess fitness and technical ability of 15- to 16-year-old male soccer players in Ba Ria - Vung Tau province

Factor	**Test**	**1st** $\overline{X}$ **± S**	**2nd** $\overline{X}$ **± S**	**r**	**P**
Fitness	Long jump (cm)	251.52 ± 4.78	250.92 ± 4.92	0.85	< 0.05
	15m sprint (s)	2.29 ± 0.05	2.31 ± 0.04	0.88	< 0.05
	5x30m running (s)	22.61 ± 0.56	22.80 ± 0.46	0.91	< 0.05
	Test Cooper (m)	2915.28 ± 56.05	2902.20 ± 53.03	0.82	< 0.05
	Doing a short throw-in without momentum (cm)	1737.16 ± 55.26	1744.44 ± 49.31	0.92	< 0.05
Technical ability	Dribbling a ball to go through poles and shoot the goal (times)	7.48 ± 0.34	7.49 ± 0.31	0.95	< 0.05

	Juggling a ball with feet (times)	36.68 ± 3.52	37.12 ± 3.31	0.84	< 0.05
	Doing a standard pass (times)	4.08 ± 0.91	4.24 ± 0.88	0.86	< 0.05
	Shooting a ball from a distance of 16.5 meters (times)	4.36 ± 1.04	4.44 ± 0.82	0.84	< 0.05

Both of the reliability coefficients via two checks yield $r > 0.8$, and $P < 0.05$, according to Table 2. This shows that the chosen tests have a good connection with one another and are reliable enough to assess the technical skill and fitness level of 15-16-year-old male football athletes in Ba Ria - Vung Tau province.

In conclusion, the study has identified fitness and technical ability tests for young male football players aged 15 and 16 in Ba Ria - Vung Tau province based on the findings of the document synthesis, interview, and reliability test procedures.

- **Fitness tests:** 15m sprint (s), 5x30m Running (s), Long jump (cm), Test Cooper (m), Doing a short throw-in without momentum (cm).
- **Technical ability tests:** Dribbling a ball to go through poles and shoot the goal (s), Juggling a ball with feet (times), Shooting a ball from a distance of 16.5 meters (times), Doing a standard pass (times).

4. Discussion

4.1 Fitness tests

Speed is the rate at which a movement is completed in the least amount of time. Football is a sport in which speed breakthroughs at various short distances occur often (10-20m). As a result, modern football requires players to constantly draw closer to or escape from the opponent's grip. It is obvious to grasp how a faster player might generate an edge in both defense and offense in a frontal conflict situation. In fact, numerous attacking players have been using their speed to overcome the offside trap and score important goals. On the other hand, there are defensive players with good agility, while going slowly, who can swiftly block the opponent's deadly threats. Hence, it is appropriate to choose the 15m sprint(s) test to assess the speed of sports players.

Speed endurance is the capacity to endure or repeat a high-speed action repeatedly during training or competition. Football is a sport with a relatively long playing time that frequently occurs through direct combats and constant speed sprinting over short distances. To win these tournaments and keep a consistent tempo of repetition during the contest, an athlete must possess good speed endurance as a long match necessitates players having strong stamina and an ability to move fast to suit each circumstance, particularly keeping such ability till the end of the tournament. As a result, the study's selection of running 30m x 5 times (s) to measure speed endurance appears reasonable.

Endurance is the ability to perform an activity at a certain intensity for the longest time that the body can tolerate. It is one of the most significant aspects of physical fitness since it serves as the foundation for the development of other attributes. Endurance

influences not only muscular function but also the neurological system, physical recovery, workout enjoyment, and efficiency. It is widely believed that sufficient endurance enables athletes efficiently polish and enhance the level of tactical tactics to fulfill the coaches' expectations.

Because a football match today may go up to 120 minutes, players are supposed to be more focused on improving their endurance. The fact reveals that many athletes play very skillfully in the opening minutes, however, after half of the match, they are unable to maintain their efficiency owing to their lowered physical prowess, which tends to adversely impair the others' performance and overall strategies.

African football teams are clear evidence of how important endurance is to football players. Despite their modest development, African teams have recently achieved admirable success in football. When they play against powerful European or American teams, they display fearlessness and do not back down from a direct battle. While their technical skills are undoubtedly not as good as that of the elite teams in Europe or America, African athletes possess tremendous physical strength and endurance that causes anxiety to their opponents.

Given the significance of endurance in modern football, the Cooper test has been chosen to assess the aerobic endurance of the study subjects. It was introduced and developed by American Doctor Cooper in 1970 to assess the mobility of American soldiers by running for 12 minutes. It is assumed that if someone can run longer distances, he or she has better physical performance. Now the Cooper test has been widely used around the world thanks to its ease of execution. It is also highly supported by football specialists as a global test to examine the endurance of football athletes, as well as to assess athletic performance and indirect VO2max. Thus, the study's selection of the Cooper test in order to evaluate aerobic endurance for 15- to 16-year-old male football players in Ba Ria - Vung Tau province seems consistent with football experts.

In addition to endurance and strength, strength is inevitable in football. Human strength is the capacity to overcome or withstand external resistance via muscular effort. To prevail in the situation, athletes have to defend the ball from opponents, counter opponents' threats, shoot the ball fast to attack, and pass long while quickly counterattacking. They are required to be extraordinarily strong to perform these tasks effectively (especially lower limb strength). In reality, a lot of goals are scored through sudden kicks in the middle of the field or quick counterattacks involving long passes from midfield to the goalposts. Thus, jumping exercises are essential for developing the strength of youth football players.

The research has employed the long jumping test to gauge the lower limb strength of 15 to 16-year-old football players in Ba Ria - Vung Tau province. This test, which is particularly well-liked for assessing lower limb strength, has been chosen by more than 100 scientists from throughout the nation to assess the physical fitness of Vietnamese people between the ages of 6 and 60. Therefore, it is evident that the test of long jump (cm) is an appropriate one to assess the lower limb strength of young athletes.

All football-related activities demand physical strength. Besides feet, athletes utilize their whole bodies to shoot or pass the ball, cover it while the opponent is disputing, bend their hips to strike the ball with their heads, or throw the ball. In reality, a lot of goals come from powerful throw-ins into the 16.5 meters area for teammates to score or from rapid throw-ins for attacking teammates to score while the opposition has not yet backed up to defend. The development of upper body strength through throw-in exercises is therefore crucial for the training of young football athletes.

In conclusion, the chosen fitness tests including 15m sprint, 5x30m running, Cooper Test, long jump, and doing a short throw-in with momentum (cm) appears reliable enough to evaluate the physical foundation of 15-16-year-old male football players in Ba Ria - Vung Tau province. The results of this paper are also consistent with other football experts such as Nguyen Van Ba (2009) [2], Duong Nghiep Chi et al (2004) [3], Nguyen Dang Chieu (2006) [4], Duong Van Hien (2008, 2018) [7] [8], Tran Duy Hoa (2012) [9], Nguyen Trong Loi (2004) [10], Nguyen Duc Nham (2005) [12], Pham Quang (2004) [14], Pham Xuan Thanh (2007) [15], Nguyen Thiet Tinh (1997) [16], Nguyen The Truyen - Nguyen Kim Minh - Tran Quoc Tuan (2002) [17], Pham Ngoc Vien et al. (2004) [18].

4.2 Technical ability tests

Agility refers to the capacity to move quickly and rhythmically with high amplitude and frequency. It is a vital prerequisite for reaching the necessary level of movement quantity and quality. An agile player is supposed to be capable of carrying out certain actions like shooting and passing with a high level of precision. Thus, improving agility and ball feeling for young players should be a focus of football training.

The ability of the feet to handle the ball is measured using the one-minute ball juggling test because it is one of the most fundamental methods for developing an athlete's sense of the ball. It will be advantageous for a football player if he can handle the ball in confined places (with the opponents or in the penalty area), making it challenging for the rival and providing favorable possibilities for himself. An athlete with high agility is expected to create scoring possibilities for him and his teammate in the attacking area. Therefore, the thesis has selected the test of juggling a ball with two feet in one minute (times) to evaluate a football player’s technical ability.

Passing the ball is the foundation for implementing synchronized tactical elements. A team with numerous skilled passers-by will readily implement tactical intentions, allowing them to swiftly approach the opponent's goal or maintain the game's flow when necessary. On the contrary, if many players pass the ball wrongly to their mates, their team's attack rhythm will be disrupted or the ball will be sent to the opponent's foot, which is extremely hazardous to counterattack. In fact, there are many matches where two teams are equally skilled, struggling for almost the whole match, but in the very last minutes when a player with an accurate ball pass successfully puts their teammates into an advantageous position to score a goal. Therefore, the test of doing a standard pass is suitable to assess how efficiently a player can adjust a ball movement.

Conducting a goal shot is the ultimate aim of all tactical coordination, and the primary factor deciding match outcome. It is widely believed that which team has a strong goal-kicking ability can compel the other to maintain defense or lower their attacking willpower, resulting in an effective defensive posture from a far distance.

The teams are now nearly identical. As a result, the side that capitalizes on attacking possibilities is seen as the match decider. To do it, players need to kick the ball quickly, in the proper direction, and with enough force that the opponents are unable to counter. As a result, kicking exercises are critical and should be included in the training of young football players on a regular basis. However, in some cases when the opponent team deploys extensive defense in their home penalty area and it can be incredibly difficult to access that territory, the use of long-range shots outside the 16.5 meters zone is the most feasible approach at that time. In reality, numerous goals have been scored by accurate long-range efforts.

Individual tactics, along with team tactics, play a vital part in modern football. Breakthrough dribbling is the most effective strategy to neutralize and disrupt the opponents' defense, causing them to lose their defensive tactical posture and generating opportunities for the teammates to shoot the ball. Indeed, many matches end in a deadlock after a few minutes of individual bursts like breakthroughs, passing the ball through a series of players. This is the reason why dribbling drills should be practiced often in the training of young football players. Hence, it is appropriate to select the test of dribbling the ball to kick the goal (s) in order to evaluate an athlete's professional orientation, as well as examine his ability to observe and respond swiftly.

In a nutshell, the chosen technical ability tests including dribbling a ball to go through poles and shoot the goal (s), juggling a ball with feet (times), shooting a ball from a distance of 16.5 meters (times), doing a standard pass (times) are seen reliable to male football players aged 15 and 16 in Ba Ria - Vung Tau province. Moreover, the study results are consistent with the football experts such as Nguyen Van Ba (2009) [2], Duong Nghiep Chi et al (2004) [3], Duong Van Hien (2008, 2018) [7] [8], Tran Duy Hoa (2012) [9], Nguyen Trong Loi (2004) [10], Nguyen Duc Nham (2005) [12], Pham Quang (2004) [14], Pham Xuan Thanh (2007) [15], Nguyen Thiet Tinh (1997) [16], Nguyen The Truyen - Nguyen Kim Minh - Tran Quoc Tuan (2002) [17].

5. Conclusion

Through the steps of document reference, interviews, and test reliability, the paper has identified 09 tests to evaluate the fitness and technical competency of male football players aged 15-16 years old in Ba Ria - Vung Tau province as follows:

- **Fitness tests:** 15m sprint (s), 5x30m Running (s), Long jump (cm), Test Cooper (m), Doing a short throw-in without momentum (cm).
- **Technical ability tests:** Dribbling a ball to go through poles and shoot the goal (s), Juggling a ball with feet (times), Shooting a ball from a distance of 16.5 meters (times), Doing a standard pass (times).

Conflict of Interest Statement

The authors declare no conflicts of interest.

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