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THE PHYSICAL FITNESS STATUS OF MALE ATHLETES IN FIVE-A-SIDE FOOTBALL TEAMS AT KIEN LUONG HIGH SCHOOL, KIEN GIANG PROVINCE, VIETNAM

Cau Hoang Chau[1],
Thanh Minh Dang[1],
Do Kim Tran[2i]
[1]Dr.,
Can Tho University,
Vietnam
[2]MA,
Kien Luong High School,
Vietnam

Abstract:
High physical fitness enables players to maintain endurance, agility, and strength throughout matches. Physical fitness is not merely about training the body but also about maximizing a player's potential skills, thereby increasing the team's chances of victory. This study aims to identify appropriate fitness assessment tests for male football players. It employed conventional scientific research methods in sports science, including literature review, survey, and reliability testing of the selected fitness tests. The research involved 12 male athletes from five-a-side football teams at Kien Luong High School, Kien Luong District, Kien Giang Province. The study has identified seven reliable tests that can represent the features of the sample group. The assessment results also indicate that the athletes exhibit a relatively high level of physical fitness.

Keywords: physical fitness, male athletes, five-a-side football, Kien Luong High School

1. Introduction

School football is an excellent way for students to develop a strong foundation of physical fitness, which will help them succeed academically and in life. Moreover, through school football programs, talented players would be identified, helping to build talented teams at the school, district, provincial, and ultimately national levels.

Football is now part of the elective physical education curriculum at Kien Luong High School. This program helps children build their moral character, physical well-

[i] Correspondence: email chcau@ctu.edu.vn, dmthanh@ctu.edu.vn, dotran2106@gmail.com

being, and resilience, in addition to enabling them to follow their love of the sport. Besides National Phu Dong Sports Game competitions, the school's football squad has competed in district and provincial tournaments over the years. Nevertheless, its accomplishments remain somewhat small.

Practical observations suggest that high school sports programs, particularly football, continue to suffer a number of obstacles, the most significant of which affect students' physical health. Therefore, assessing students' physical fitness levels regularly is essential to building a strong foundation for future training and competitions, ensuring that they can meet the necessary fitness requirements at Kien Luong High School.

This has motivated the authors to conduct the study titled: *"The Physical Fitness Status of Male Athletes in Five-a-side Football Teams at Kien Luong High School, Kien Giang Province, Vietnam."*

2. Methodology

The study employed three methods as follows:

- Document Synthesis and Analysis Method is used to systematize relevant information taken from research and other authorized documents, serving as a foundation for the study. It also aids in selecting appropriate research methods and fitness assessment tests for the research subjects.
- Survey Method is used to gather expert perspectives to shortlist physical fitness assessment tests for five-a-side football players.
- Pedagogical Testing Method is used to evaluate the physical fitness tests administered to the male athletes in five-a-side football teams at Kien Luong High School, Kien Giang Province.

The collected data was then processed using statistical and mathematical methods run by SPSS 22.0 software.

The study also involves two research subjects as follows:

2.1 Research Participants

12 male athletes from five-a-side football teams at Kien Luong High School, Kien Giang Province.

2.2 Surveys

30 experts, coaches, managers, teachers, and referees specializing in football and five-a-side football.

3. Results and Discussions

To assess the physical fitness status of male athletes in Five-a-side Football Teams at Kien Luong High School, Kien Luong District, Kien Giang Province, the study followed two main steps:

- **Step 1**: Identifying the physical fitness assessment tests for male athletes in Five-a-side Football Teams at Kien Luong High School.
- **Step 2**: Evaluating the physical fitness status of these athletes with the selected tests.

3.1 Identifying the physical fitness assessment tests for male athletes in Five-a-side Football Teams at Kien Luong High School

The process of determining the physical fitness assessment tests was conducted in the following steps:

- **Steps 1:** A collection of domestic and international physical fitness assessment tests for football players is taken from:
  - Tran Manh Hung (2023) [5];
  - Nguyen Van Chinh (2023) [3];
  - Hoang Minh Chien (2020) [2];
  - Vu Dinh Mai (2019) [7];
  - Le Ngoc Han Thuyen (2017) [10];
  - Trinh Huu Loc – Ngo Huu Phuc – Lam Van Vu – Pham Thai Vinh (2015) [6];
  - Dang Van Nhan (2016) [8];
  - Lam Phuoc Binh (2012) [1];
  - Ha Viet Dung (2016) [4];
  - Pham Thanh Phi (2017) [9].

Moreover, based on the main objectives of the training period, the characteristics of five-a-side football, the conditions for conducting tests, and referring to the experience of experts, the authors only selected 26 tests.

- **Step 2:** A questionnaire was then conducted to collect the opinions of experts and coaches.

The surveys were carried out twice, one month apart, using the same evaluation method, test system, and respondents.

The responses are presented in Table 1.

Table 1: Results of the two surveys to select physical fitness assessment tests for male athletes of five-a-side football teams at Kien Luong High School, Kien Luong District, Kien Giang Province

No.	Test	1st (n = 30)		2nd (n = 30)		◎◎◎	P
		Total points	%	Total points	%		
A. General Physical Strength							
1	30m Sprint with High Start (seconds)	53	88	54	90	0.04	>0.05
2	60m High-Speed Sprint (seconds)	45	75	49	82	0.39	>0.05
3	100m Sprint with Low Start (seconds)	42	70	48	80	0.80	>0.05
4	400m Sprint with High Start (seconds)	46	77	46	77	0.00	>0.05
5	4 x 10m Shuttle Run (seconds)	54	90	50	83	0.58	>0.05
6	Prone Push-ups for 30 Seconds (reps)	38	63	44	73	0.69	>0.05
7	Dominant Hand Grip Strength (kg)	36	60	45	75	1.54	>0.05
8	Supine Sit-ups (reps)	36	60	47	78	2.36	>0.05
9	Prone Back Extensions (reps)	42	70	46	77	0.34	>0.05
10	Standing Long Jump (cm)	50	83	55	92	0.95	>0.05
11	Vertical Jump (cm)	43	72	48	80	0.57	>0.05
12	Sit and Reach (cm)	39	65	46	77	0.99	>0.05
13	5-Minute Endurance Run (m)	37	62	45	75	1.23	>0.05
B. Specialized Physical Strength							
14	Leg Muscle Strength (kg)	46	77	49	82	0.23	*>0.05*
15	In-Place Jump with Heading 30 Times (seconds)	42	70	48	80	0.80	>0.05
16	Frog Jump 10m (seconds)	41	68	48	80	1.07	>0.05
17	Shuttle Run 5m - 10m - 15m - 20m (seconds)	45	75	49	82	0.39	>0.05
18	5 x 30m Sprint (seconds)	57	95	58	97	0.10	>0.05
19	Zigzag Run (seconds)	43	72	47	78	0.36	>0.05
20	25m Weave Run (seconds)	56	93	57	95	0.08	>0.05
21	15m Hopping on One Leg (seconds)	33	55	43	72	1.79	>0.05
22	Jump Rope for 2 Minutes (reps)	35	58	45	75	1.88	>0.05
23	1500m Run (seconds)	44	73	46	77	0.09	>0.05
24	Yo-Yo Test (meters)	55	92	57	95	0.27	>0.05
25	12-Minute Cooper Test (meters)	56	93	56	93	0.00	>0.05
26	Beep test (level)	46	77	46	77	0.00	>0.05

The results from Table 1 indicate that, for all of the tests assessed in the two survey rounds, the calculated χ^2 value (χ^2_calculated) was less than the critical χ^2 value (χ^2_table = 3.84) at a significance level of $P > 0.05$. This suggests that the observed differences between the two rounds of surveys were not statistically significant at $P > 0.05$. Therefore, the responses from the experts and coaches demonstrated a high level of consistency.

The authors also selected tests in which the total score exceeded 82% (more than 49 points) in both survey rounds. Following this criterion, seven tests were selected to assess the physical fitness of male athletes in five-a-side football teams at Kien Luong High School, Kien Luong District, Kien Giang Province.

On the one hand, the selected general physical fitness tests include the 30m Sprint with High Start (seconds), the 4 x 10m Shuttle Run (seconds), and the Standing Long Jump (cm). On the other hand, the specialized physical fitness tests consist of the 5 x 30m

Sprint (seconds), the 25m Weave Run (seconds), the Yo-Yo Test (meters), and the 12-Minute Cooper Test (meters).

- **Step 3:** Test reliability

To measure the reliability of the selected tests, the study conducted assessments on the male athletes twice. The two testing sessions were conducted five days apart under identical conditions to ensure consistency in measurement.

After the assessments, the correlation coefficient (r) for each test between the two rounds was calculated. The results of this analysis are presented in Table 2.

Table 2: Reliability coefficient of physical fitness assessment tests for male athletes of five-a-side football teams of Kien Luong High School, Kien Luong District

No.	Test	Final test (n=12)		Retest (n=12)		r	P
		$\overline{X}$	S_x	$\overline{X}$	S_x		
1	30m Sprint with High Start (seconds)	4.23	0.09	4.25	0.06	0.83	<0.05
2	4 x 10m Shuttle Run (seconds)	10.16	0.30	10.08	0.24	0.90	<0.05
3	Standing Long Jump (cm)	224.8	5.42	225.3	6.30	0.82	<0.05
4	5 x 30m Sprint (seconds)	22.81	0.44	22.73	0.45	0.90	<0.05
5	25m Weave Run (seconds)	6.50	0.3	6.55	0.2	0.92	<0.05
6	Yo-Yo Test (meters)	555.0	40.11	556.7	37.01	0.94	<0.05
7	12-Minute Cooper Test (meters)	2838	121.38	2855	104.26	0.83	<0.05

A test is considered reliable if the correlation coefficient $r > 0.8$ and the significance level $P < 0.05$. Otherwise, if $r < 0.8$, the test is deemed unreliable.

The results in Table 2 indicate that all the assessed tests had $r > 0.8$ and $P < 0.05$, confirming that these tests are sufficiently reliable for evaluating the physical fitness of the research subjects.

Through the process of literature review, expert survey, and reliability testing, the study has identified the following valid and reliable physical fitness assessment tests for male athletes in Five-a-side Football Teams at Kien Luong High School, Kien Luong District, Kien Giang Province, including 30m Sprint with High Start (seconds), 4 x 10m Shuttle Run (seconds), Standing Long Jump (cm), 5 x 30m Sprint (seconds), 25m Weave Run (seconds), Yo-Yo Test (meters), 12-Minute Cooper Test (meters).

3.2 The current physical strength of male athletes of five-a-side football teams at Kien Luong High School, Kien Luong District, Kien Giang Province

The study used the above tests to assess the physical fitness of the male athletes at five-a-side football teams of Kien Luong High School, Kien Luong District, Kien Giang Province. The results are presented in Table 3.

Table 3: Physical fitness of male athletes of five-a-side football teams at Kien Luong High School, Kien Luong District, Kin Giang Province

No.	Test	$\overline{X}$	S_x	C_v	ε
1	30m Sprint with High Start (seconds)	4.23	0.09	2.2	0.01
2	4 x 10m Shuttle Run (seconds)	10.16	0.30	3.0	0.02
3	Standing Long Jump (cm)	224.83	5.42	2.4	0.02
4	5 x 30m Sprint (seconds)	22.81	0.44	1.9	0.01
5	25m Weave Run (seconds)	6.50	0.30	4.6	0.03
6	Yo-Yo Test (meters)	555.0	40.11	7.2	0.05
7	12-Minute Cooper Test (meters)	2838	121.4	4.3	0.03

Table 3 shows that:

For the 30m Sprint with High Start, the mean value $\overline{X}$ was recorded at 4.23 seconds, with a standard deviation (S_x) of 0.09 and a coefficient of variation (C_v) of 2.2%. Since C_v < 10%, the sample demonstrates a high level of consistency. Additionally, the relative error was 0.01 (ε =0.05), confirming that the mean value is representative of the overall sample.

Similarly, for the 4 x 10m Shuttle Run, the mean value $\overline{X}$ was 10.16 seconds, with a standard deviation (S_x) of 0.3 and a coefficient of variation (C_v) of 3%. Since C_v < 10%, this test also demonstrates a high level of uniformity among the athletes. The relative error was 0.02 (ε = 0.05), further confirming the representativeness of the sample data.

For the Standing Long Jump, the mean value $\overline{X}$ was recorded at 224.8 cm, with a standard deviation (S_x) of 5.42 and a coefficient of variation (C_v) of 2.4%. Since C_v < 10%, the sample exhibits a high level of consistency, indicating that the athletes have relatively uniform lower-body strength and explosive power. Additionally, the relative error was 0.02 (ε = 0.05), confirming that the mean value accurately represents the overall sample.

For the 5 x 30m Sprint, the mean value $\overline{X}$ was 22.81 seconds, with a standard deviation (S_x) of 0.44 and a coefficient of variation (C_v) of 1.9%. Since C_v < 10%, this test also demonstrates a high level of uniformity among the athletes. The relative error was 0.01 (ε = 0.05), ensuring that the mean value is representative of the sample.

For the 25m Weave Run (seconds), the mean value $\overline{X}$ was 6.50 seconds, with a standard deviation (S_x) of 0.3 and a coefficient of variation (C_v) of 4.6%. Since C_v < 10%, the sample demonstrates high uniformity, indicating consistent performance among the athletes. The relative error was 0.03 (ε = 0.05), confirming that the mean value is representative of the sample.

For the Yo-Yo Test (meters), the mean value $\overline{X}$ was 555.0 meters, with a standard deviation (S_x) of 40.11 and a coefficient of variation (C_v) of 7.2%. Since C_v < 10%, the sample shows high consistency, reflecting a uniform level of endurance among the athletes. The relative error was 0.05 (ε = 0.05), suggesting the mean value accurately represents the sample.

For the 12-Minute Cooper Test (meters), the mean value $\overline{X}$ was 2838 meters, with a standard deviation (S_x) of 121.4 and a coefficient of variation (C_v) of 4.3%. Since C_v < 10%, the test results indicate a high level of consistency across the athletes, confirming uniform aerobic endurance performance. The relative error was 0.03 (ε = 0.05), ensuring the mean value is representative of the sample.

4. Conclusion

Through the process of literature synthesis, interviews, and reliability testing, seven physical fitness tests have been identified as reliable for evaluating male athletes of five-a-side football teams at Kien Luong High School, Kien Luong District, Kien Giang Province. These tests include a 30m Sprint with High Start (seconds), 4 x 10m Shuttle Run (seconds), Standing Long Jump (cm), 5 x 30m Sprint (seconds), 25m Weave Run (seconds), Yo-Yo Test (meters), 12-Minute Cooper Test (meters).

The performance of these athletes across the physical fitness assessment tests demonstrates consistency, suggesting that the average values of all seven tests are representative of the overall sample population.

Conflict of Interest Statement
The authors declare no conflicts of interest.

About the Author(s)
Cau Hoang Chau has been a physical education teacher at Can Tho University in Vietnam.
Thanh Minh Dang has been a physical education teacher at Can Tho University in Vietnam.
Do Kim Tran has been a physical education teacher at Can Tho University, Vietnam Kien Luong High School in Vietnam.

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