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Master Tran Huy Duc
Vietnam Football Federation, Vietnam

Corresponding Author:
Master Tran Huy Duc
Vietnam Football Federation, Vietnam

Developments in the professional strength of Vietnamese U17 women's football athletes after a year of training

Master Tran Huy Duc

Abstract
After a year of application development exercise endurance expertise that theme built for Vietnamese U17 women's football athletes. The assessment results in the period ended experiment showed differential effects on achievement in all 5 tests evaluate placement of competing athletes. Achievement of better striker and midfielder better defender.

Keywords: professional endurance, athlete, football, female, 17 years old, Vietnam

Introduction
Prior to the growing demand for the women's soccer training process, the assessment of the capacity of the athletes is useful for the selection, for capacity building programs, to anticipate physical achievement and achievement in the games. The technical endurance of football athletes is the most important force in the world to maximize efficiency - during the course of the competition. The highly skilled athlete will uphold the step in the game, confident enough to do the technique and help the coach choose the appropriate tactics in the matches.
There are many methods described to assess the professional endurance capacity of football players. In the laboratory, the maximum level of oxygen consumption of (VO^2max) in the exhausting test is considered to be the top standard because it allows for the simultaneous evaluation of other important parameters such as metabolic conversion threshold, pulmonary ventilation, and cardiac activity... However, for team sports, this assessment is very limited, due to the time consuming, technical team must be trained. expensive technicians and equipment.
The practice of training in Vietnamese U17 women's football athletes is now showing that the method, test, and evaluation of the capacity of the specialized capacity are limited and do not have an adequate scientific basis. Therefore, the monitoring and determination of the characteristics of the testing of professional strength tests after a period of training are necessary. The contents of the article focused on the assessment of the professional strength of Vietnamese U17 women's football athletes after 1 year of training. The aim aims to build and complete the content of professional endurance training for Vietnamese U17 women's football athletes**.**

Research Method
The research process uses methods: analytical methods and synthesis of documents; methods of the interview; methods of testing pedagogy; pedagogical methods; statistical methods.
Using the R software to calculate the average parameter, the standard deviation, t in pairs t-test) applications for each of the female athletes being monitored over time at each competing position.
Experimental subjects are Vietnamese U17 women's football athletes and divided into groups of playing positions: 7 strikers; 7 midfield players; 7 defender players. The experimental process is applied to the technical development exercises that are subject to the construction and selection of one year's training cycle. Inspection of 5 tests shall be conducted in 3 stages: initial (phase 1); mid-experiment (phase 2); the end of the experiment (phase 3).

Evaluation of achievements achieved by comparison method in pairs.

Research Results and Discussion

After the process of applying professional-strength development exercises to the construction of the subject, a year's training cycle, we have evaluated the progress of the test value over the time of examination. The average value of the evaluation tests in stages such as presented in table 1 to table 5.

Table 1: The average value of the Cooper test (m) based on (n=7)

NO	Time	Forwards		Midfield players		Defenders	
		$\overline{X}$	δ	$\overline{X}$	δ	$\overline{X}$	δ
1	Phase 1	2200.7	108.65	2196.6	106.57	2192.4	104.19
2	Phase 2	2255.3	110.78	2244.7	108.28	2232.0	107.94
3	Phase 3	2312.6	108.74	2295.3	106.15	2272.1	109.40
		Mean of the differences	t	Mean of the differences	t	Mean of the differences	t
4	Phase 1-2	54.6	29.291***	48.1	30.764***	39.6	15.852***
5	Phase 2-3	57.3	43.927***	50.6	15.559***	40.1	33.349***
6	Phase 1-3	111.9	116.29***	98.7	53.418***	79.7	31.242***
Note: * with $P<0.05$; ** with $P<0.01$; *** with $P<0.001$							

The results in table 1 show that after using aerobic energy development exercises, the average value between the phases of phases increases. The meaning of the difference between Phase 1-3 of the Cooper Test increased 111.9m with Forwards, 98.7m with Midfield players, 79.7m with Defenders, and confidence interval with P value < 0.001. So we have evidence to say that the increase in the Cooper test is statistically significant. In other words, the exercises have had a positive effect on developing aerobic endurance for football athletes.

Table 2: Average value of 5x30m Repeated Sprint Test(s) by playing position (n=7)

NO	Time	Forwards		Midfield players		Defenders	
		$\overline{X}$	σ	$\overline{X}$	σ	$\overline{X}$	σ
1	Phase 1	5.28	0.12	5.21	0.10	5.46	0.16
2	Phase 2	5.06	0.14	5.07	0.11	5.21	0.14
3	Phase 3	4.85	0.11	4.94	0.12	5.03	0.11
		Mean of the differences	t	Mean of the differences	t	Mean of the differences	t
4	Phase 1-2	-0.22	11.737***	-0.14	5.359**	-0.25	16.937***
5	Phase 2-3	-0.21	22.153***	-0.13	4.332**	-0.18	9.329***
6	Phase 1-3	-0.43	26.708***	-0.27	25.332***	-0.43	20.428***
Note: * with $P<0.05$; ** with $P<0.01$; *** with $P<0.001$							

The results in Table 2 show that after using the exercises develop anaerobic endurance speed, the average value between the phases is reduced. The meaning of the difference between Phase 1-3 of 5x30m Repeated Sprint Test reduces 0.43s with forwards, 0.27s with Midfield players, 0.43s with Defenders, and the reliability of $p<0.001$. So we have evidence that the good performance of the 5x30m repeated sprint test is statistically significant. In other words, the exercises have had a positive effect on developing anaerobic speed endurance for football athletes.

Table 3: The average value of countermovement Jump test (cm) by playing position (n=7)

TT	Time	Forwards		Midfield players		Defenders	
		$\overline{X}$	σ	$\overline{X}$	σ	$\overline{X}$	σ
1	Phase 1	23.36	3.17	20.06	3.93	19.16	4.69
2	Phase 2	30.04	3.32	27.86	2.66	24.76	2.72
3	Phase 3	37.03	3.26	34.10	3.44	30.79	3.41
		Mean of the differences	t	Mean of the differences	t	Mean of the differences	t
4	Phase 1-2	6.68	19.517***	7.8	13.588***	5.6	7.198***
5	Phase 2-3	6.99	17.077***	6.24	15.800***	6.03	20.782***
6	Phase 1-3	13.67	31.297***	14.04	24.086***	11.63	19.975***
Note: * with $P<0.05$; ** with $P<0.01$; *** with $P<0.001$							

The results in table 3 show that after using the power development exercise from the vertical expansion of the vertical jump, the average value between all phases increases. The meaning of the difference between phases 1 - 3 of the countermovement jump test increases 13.67cm with forwards, 14.04cm with midfield players, 11.63cm with defenders, and the reliability of $p<0.001$. So we have evidence to say that the increase in countermovement jump test means statistically significant. In other words, we have evidence to state that the increase in performance of the Countermovement Jump test is statistically significant. In other words, the exercises have had a positive effect on developing explosive strength distributed to soccer players.

Table 4: The average value of Illinois Agility Test(s) by playing position (n=7)

NO	Time	Forwards		Midfield players		Defenders	
		$\overline{X}$	σ	$\overline{X}$	σ	$\overline{X}$	σ
1	Phase 1	18.40	0.61	19.19	1.40	19.60	1.49
2	Phase 2	18.07	1.15	18.46	1.45	18.86	1.49
3	Phase 3	17.23	1.05	18.00	1.37	18.04	1.36
		Mean of the differences	t	Mean of the differences	t	Mean of the differences	t
4	Phase 1-2	-0.33	1.493	-0.73	15.377***	-0.74	24.980***
5	Phase 2-3	-0.84	8.262***	-0.46	3.128*	-0.82	14.717***
6	Phase 1-3	-1.17	5.636**	-1.19	9.260***	-1.56	25.457***
Note: * with $P<0.05$; ** with $P<0.01$; *** with $P<0.001$							

The results in table 4 show that after using a combined strength development exercise between slow - combination and rapid acceleration, the average value between the phases is reduced. The meaning of the difference between phase 1 - 3 of the Illinois agility test reduces 1.17s with forwards, 1.19s with midfield players, 1.56s with defenders, and the reliability of $p<0.01$ to 0.001. So we have evidence to say that the Illinois Agility Test's good performance level is statistically significant. In other words, exercises that have had a positive effect on endurance development have a combination of deceleration and sudden acceleration for football athletes.

Table 5: The average value of The Yo-Yo Intermittent Endurance Test Level 2 (m) by playing position (n=7)

NO	Time	Forwards		Midfield players		Defenders	
		$\overline{X}$	σ	$\overline{X}$	σ	$\overline{X}$	σ
1	Phase 1	1181.3	115.93	1102.4	117.53	1061.7	101.24
2	Phase 2	1358.0	147.63	1279.3	139.42	1196.3	166.63
3	Phase 3	1546.0	147.13	1468.0	156.08	1406.7	204.54
		Mean of the differences	t	Mean of the differences	t	Mean of the differences	t
4	Phase 1-2	176.7	11.198***	176.9	14.014***	134.6	4.436*
5	Phase 2-3	188.0	16.459***	188.7	23.181***	210.4	8.020***
6	Phase 1-3	364.7	17.146***	365.6	17.943***	345.0	7.333***
Note: * with $P<0.05$; ** with $P<0.01$; *** with $P<0.001$							

The results in table 5 show that after using repetitive and intermittent endurance exercises, the average value between the phases of phases increases. The significance of the difference between Phase 1-3 of Yo-Yo Intermittent Endurance Test Level 2 increased 364.7m with Forwards, 365.6m with Midfield players, 345.0m with Defenders, and confidence interval with P-value< 0.001. Thus, we have evidence to state that the increase in performance of Yo-Yo Intermittent Endurance Test Level 2 is statistically significant. In other words, the exercises have had a positive effect on the development of repetition and interval endurance for football athletes.

In short, the result of Table 1 to Table 5 shows that achievement gains in tests when comparing in the form of pairwise self-matching of the Vietnamese U17 women's football athletes in all three positions. As compared to the achievement of test tests between the competition positions, the performance of strikers is better than midfielders and midfielders are better than defenders.

Conclusion

The results of the examination of pedagogical tests over five tests for Vietnamese U17 women's football athletes after 1 year of training have confirmed the difference, as well as a sharp growth in the results of a year's training compared to the initial time. Therefore, it is possible to confirm effectiveness in assessing the professional endurance of Vietnamese U17 women's football athletes through tests and exercises in training that the research process has identified.

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