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EVALUATION OF THE EFFECTIVENESS OF SOME EXERCISES TO IMPROVE THE LEG SPEED FOR MALE ATHLETES FROM THE VOVINAM TEAM AT FPT UNIVERSITY, HO CHI MINH CITY, VIETNAM

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Abstract:
On the basis of the selection of some specialized footwork exercises, the study evaluated the effectiveness of some selected exercises to improve the leg speed of male athletes from the Vovinam team at FPT University in Ho Chi Minh City, Minh, Vietnam. After the experimental program, it was shown that the growth of Vovinam athletes of FPT University Ho Chi Minh City's foot speed with a statistically significant increase (t count ≥ t 05 at the threshold of probability $P < 0.05$). The average growth rate W% is 6.2. Which test with the highest growth rate is the monocular reflex (ms) with W% = 10.9%. The test with the lowest growth rate is moving and side kicking 5 target(s) with W% = 3.8%. From there, it shows the good effect of 24 exercises that have been selected and applied to develop Vovinam male athletes of FPT University in Ho Chi Minh City's leg speed.

Keywords: exercises, footwork, efficiency, speed, Vovinam

1. Introduction

Vovinam - Viet martial art is a martial art founded by Master Nguyen Loc in 1936, but at this time it was operating quietly, only to be brought out publicly until 1938. At the same time, he proposed the theory of "mind-body revolution" to motivate students to always renew themselves, and towards good physical and mental well-being.

Vovinam is developed based on traditional Vietnamese wrestling, combined with the quintessence of martial arts around the world. Among the martial arts of Vietnam,

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Vovinam has been developed on the largest scale and with many students present in more than 60 countries around the world, including Poland, Belgium, Cambodia, Denmark, Germany, the United States, Morocco, Norway, Russia, France, Romania, Switzerland, Sweden, Singapore, Uzbekistan, Thailand, Italy, Australia, India, Iran, Spain, Algeria, Taiwan.

It is based on the foundation of martial arts and national wrestling, and at the same time studies the quintessence of other martial arts in the world to tolerate, use and neutralize, especially to improve its technical foundation according to the principle of Hard and Soft to cooperate and develop together. The technical system (blows, stances, punches, body movement, etc.) of Vovinam sect is quite rich, diverse and characteristics. During the training and competition process of the Vovinam team at FPT University in Ho Chi Minh City, the author found that the foot strike is one of the "dangerous weapon" of the athletes when competing against each other. The foot strike can not only support defense but also has the ability to apply pressure and score with very high performance, so the training of foot speed technique is very necessary and should be taken care of.

However, in the last 2 years, training and coaching have been interrupted and greatly affected by the Covid-19 epidemic. To be ready and continue to strengthen the position and rank of Vovinam in the student playground, it is necessary to have new exercises and training plans to ensure the technical, tactical and physical factors and leg speed for vovinam athletes from FPT University in Ho Chi Minh City.

From the above-mentioned urgent situations, we realize that it is necessary to evaluate the effectiveness of some selected exercises to improve the leg speed of the Vovinam male athletes of FPT University in Ho Chi Minh City.

The research results will help improve the effectiveness of Vovinam training and performance of athletes, and also serve as a theoretical basis and specialized reference for Vovinam for other scientists. At the same time, it is also the theoretical basis and specialized reference for Vovinam for other scientists.

2. Methodology

2.1. Research object

Including 12 male students of Vovinam team of FPT University in Ho Chi Minh City and 20 lecturers, coaches, specialists, managers and experts on Vovinam.

2.2. Method

The common methods used to carry out the research tasks include: method of reference and document synthesis; interview method (anket); method of pedagogical examination; method of testing neuropsychological function; method of pedagogical examination; statistical method.

2.3. Measurement tools

We collect and select relevant documents of scientists, Vovinam teaching materials, textbooks, a number of internal and external journals, and a selection of scientific research works. relate to. As a result, 24 specialized exercises were selected to evaluate and improve the leg speed of male athletes of the Vovinam team.

Next, the topic conducted interviews with experts to select 6 common and appropriate tests to put into experimental application. Finally, SPSS v22.0 software is used to calculate and process data to evaluate the effectiveness in practical application of these exercises.

2.4. Process

The study was carried out from December 2020 to July 2022 at FPT University, Ho Chi Minh City, Vietnam.

3. Research results

3.1. Selection and application of some exercises to improve the speed of the foot swing for male athletes from the Vovinam team of FPT University in Ho Chi Minh City

By referencing documents with exercises to develop kicking speed, lower leg strength, and leg speed from many different documents, and through our own training, we have summarized and combines 33 exercises that are often used to develop leg speed development exercises for athletes of the Vovinam team.

The results show that the authors and coaches pay great attention to exercises to increase the speed of kicks for athletes in the competition content.

In fact, in order to become a competitive athlete in Vovinam with good qualifications and high achievements in training and competition, it is necessary to be fast in the latent time of the reaction. At the same time, they also have a good capacity for the timing of a single movement as well as the frequency of the movement.

Only then can new athletes take advantage and improve the ability to score points from the foot strike during the competition.

After that, the topic continued to conduct interviews with experts, lecturers, coaches, and referees about the exercises obtained. Interviews were conducted twice, 1 month apart each time. The interview results are presented in Table 1.

Table 1: Results of the interview to select some exercises to develop foot speed for male athletes from the Vovinam team at FPT University, Ho Chi Minh City

No.	Exercises	Interview result								x^2
		1st time (n=20)				2nd time (n=20)				
		Agree		Disagree		Agree		Disagree		
		n	%	n	%	n	%	n	%	
1	*Running small steps 15m*	*12*	*60*	*8*	*40*	*15*	*75*	*5*	*25*	*1.03*
2	Running and kick forward 15m	15	75	5	25	16	80	4	20	0.14
3	Running heels touching butt 15m	17	85	3	15	18	90	2	10	0.23

4	Running thigh lift 15m	18	90	2	10	17	85	3	15	0.23
5	*Running and kick straight back 15m*	*12*	*60*	*8*	*40*	*13*	*65*	*7*	*35*	*0.11*
6	Running 15m with a high start	16	80	4	20	15	75	5	25	0.14
7	Jump and bend knees for 10 seconds	18	90	2	10	19	95	1	5	0.36
8	Speed rope jump for 10 seconds	20	100	0	0	19	95	1	5	1.03
9	*Rope jump for 60 seconds*	*15*	*75*	*5*	*25*	*14*	*70*	*6*	*30*	*0.13*
10	*Jump and speed switch feet for 60 seconds*	*14*	*70*	*6*	*30*	*12*	*60*	*8*	*40*	*0.44*
11	Running and change direction according to the whistle signal	16	80	4	20	18	90	2	10	0.78
12	Retracting right (left) knee repeatedly	19	95	1	5	19	95	1	5	0.00
13	*Retracting right (left) leg knee continuously with elastic tie*	*16*	*80*	*4*	*20*	*14*	*70*	*6*	*30*	*0.53*
14	Sitting in place and kick right (left) foot	16	80	4	20	16	80	4	20	0.00
15	*Sitting in place and kick right (left) leg with weights on*	*14*	*70*	*6*	*30*	*12*	*60*	*8*	*40*	*0.44*
16	Attack the front (back) leg to the body (face)	16	80	4	20	17	85	3	15	0.17
17	Attacking with the front (back) leg toward a surprise target	18	90	2	10	19	95	1	5	0.36
18	Kick forward (reverse) when there is a signal	20	100	0	0	20	100	0	0	0.00
19	Kick right foot on 3 targets	20	100	0	0	19	95	1	5	1.03
20	Kick left foot on 3 targets	20	100	0	0	19	95	1	5	1.03
21	Standing and kick right leg into the stomach area	20	100	0	0	20	100	0	0	0.00
22	Turning on high, retracting knee, then perform a continuous clamping kick	19	95	1	5	19	95	1	5	0.00
23	Standing and kick right leg into the face area	20	100	0	0	19	95	1	5	1.03
24	Standing and kick left feet against the face	18	90	2	10	17	85	3	15	0.23
25	Standing and kick right leg against the face	18	90	2	10	17	85	3	15	0.23
26	*Kicks in front of the face*	*13*	*65*	*7*	*35*	*14*	70	*6*	*30*	*0.11*
27	*Kicks in front of the face with weights of 0.5 kg on leg*	*14*	*70*	*6*	*30*	*14*	70	*6*	*30*	*0.00*
28	Standing and kick left leg into the stomach area	20	100	0	0	19	95	1	5	1.03
29	Kick two legs continuously in the face area	20	100	0	0	19	95	1	5	1.03
30	Kick two legs continuously in the abdomen with 0.5 kg weights	16	80	4	20	17	85	3	15	0.17
31	Standing and kick left leg into the face area	17	85	3	15	16	80	4	20	0.17
32	Standing and kick left leg against the face with weights of 0.5 kg on leg	16	80	4	20	15	75	5	25	0.14
33	*Kick and moving back with one leg repeatedly in the face area*	*16*	*80*	*4*	*20*	*14*	*70*	*6*	*30*	*0.53*

The convention only selects tests that evaluate some exercises to improve leg speed with a rate of ≥75% of opinions in 2 interviews (excluding exercises with an approval rate of < 75%). At the same time, there must be an agreement between the two interviews.

Table 1 shows that in all the results observed through two interviews of the tests, there are $\chi 2$ from 0.00 to 1.03 < $\chi 2$ table = 3.84 at the probability threshold P>0.05, so the difference in the two observed values has no statistical significance. Thus, the results of

the interviews with experts, trainers and trainers show that there is a high consensus on the answers.

Summary: Through 2 research steps, the research has identified 24 exercises to develop foot speed for male athletes from the Vovinam team at FPT University in Ho Chi Minh City with ≥75% of people agreeing. At the same time, there is a similarity between the two surveys, including the following exercises:

- Exercise 1: Running kicking forward 15m (3 times x 1 group);
- Exercise 2: Running heels touching butt 15m (3 times x 1 group);
- Exercise 3: Running thigh lift 15m (3 times x 1 group);
- Exercise 4: Running 15m with a high start (3 times x 1 group);
- Exercise 5: Jump and turn on the knee for 10 seconds (2 times x 1 group of 30 seconds rest);
- Exercise 6: Speed rope jump for 10 seconds (2 times x 1 group of 30 seconds rest);
- Exercise 7: Running and change direction according to the whistle signal (2 times x 1 group rest 30 seconds);
- Exercise 8: Retracting right knee (left) continuously (30 times x 2 groups of 30 seconds rest);
- Exercise 9: Sitting in place and kick right leg (left) (30 times x 2 groups of 30 seconds rest);
- Exercise 10: Attacking the front (back) leg to the body (face) (10 times x 2 groups of 30 seconds rest);
- Exercise 11: Attacking with the front (back) leg toward a surprise target (10 times x 2 rest 30 seconds);
- Exercise 12: Kick the right foot (reverse) when there is a signal (10 times x 2 groups of 30 seconds rest);
- Exercise 13: Kick right foot on 3 targets (5 times x 2 groups of 30 seconds rest);
- Exercise 14: Kick left foot on 3 targets (5 times x 2 groups of 30 seconds rest);
- Exercise 15: Standing and kick right leg into the stomach area (30 times x 2 groups of 30 seconds rest);
- Exercise 16: Turning on high, retracting knee, then perform a continuous clamping kick (10 times clamping kicks 4 times x 2 groups of 30 seconds rest);
- Exercise 17: Standing and kick right feet against the face (30 times x 2 groups of 30 seconds rest);
- Exercise 18: Standing and kick left feet against the face (30 times x 2 groups of 30 seconds rest);
- Exercise 19: Standing and kick right leg into the stomach area (20 times x 1 rest 30 seconds);
- Exercise 20: Standing and kick left leg into the stomach area (20 times x 1 rest 30 seconds);
- Exercise 21: Kick two legs continuously in the face area (15 times x 2 groups of 30 seconds rest);

- Exercise 22: Kick two legs continuously in the abdomen with 0.5 kg weights (5 times x 2 groups of 30 seconds rest);
- Exercise 23: Standing and kick left leg into the face area (30 times x 2 groups of 30 seconds rest);
- Exercise 24: Standing and kick left leg against the face with weights of 0.5 kg on leg (20 times x 2 groups of 30 seconds rest).

3.2. Evaluating the effectiveness of applied exercises to improve leg speed for male athletes from the Vovinam team at FPT University, Ho Chi Minh City

After identifying 24 specialized exercises to improve leg speed for male athletes from the Vovinam team at FPT University in Ho Chi Minh City, the topic continues to develop a training plan for this subject.

The training plan (from February 2022 to May 2022) is based on the following factors: The general plan of the vovinam men's team at FPT University in Ho Chi Minh City for the year; The training time fund of 12 male athletes of the vovinam team of FPT University in Ho Chi Minh City according to the joint training schedule of the team and the club.

Through the research steps, the exercises to develop foot speed for male athletes from the Vovinam team of FPT University in Ho Chi Minh City are very diverse, and intensive, especially with the development of strength - lower limb speed. At the same time, these exercises are quite suitable for the level and content of the confrontation competition, so they have high practical and applicability.

The experimental program is scientifically developed and applied and closely follows the training plan as well as the actual situation of the team.

Each exercise is determined by the strict amount of movement through regulation of the components of exercise volume such as: volume, intensity, number of repetitions, number of groups performed, rest intervals, rest form. The order of impact of the exercises is quantified, the amount of movement is appropriate and the time is arranged reasonably. This is the main advantage of the project compared to other works.

3.2.1. Interview and selection of tests to assess leg speed for male athletes from the Vovinam team at FPT University, Ho Chi Minh City

Through research, synthesis of professional documents and research works of scientists, the topic has produced 17 tests commonly used to evaluate Vovinam team athletes' s speed of the leg swing.

Then, we conducted interviews with experts, experts, trainers, coaches, and referees about the exercises obtained. In order to select the assessment tests more accurately and objectively, the topic was interviewed twice by interview form, 1 month apart each time.

The selected tests need to ensure the following requirements: They fully and comprehensively assess the leg stroke speed for athletes of the FPT University Vovinam

team in Ho Chi Minh City; It is required to have at least 85% (≥85%) of the respondents agreeing on the level in both interviews; two interviews must ensure uniformity.

The results of the interview to select the leg speed assessment tests are shown in Table 2.

Table 2: Results of interview and selection of leg speed assessment tests for male athletes of the Vovinam team at FPT University, Ho Chi Minh City

No.	Tests	Interview result								x^2
		1st time (n=20)				2nd time (n=20)				
		Agree		*Disagree*		*Agree*		*Disagree*		
		n	%	*n*	%	*n*	%	*n*	%	
1	***Single reflex with eyes and feet (ms)***	***19***	***95***	***1***	***5***	***20***	***100***	***0***	***0***	***1.03***
2	Complex reflex (ms)	15	75	5	25	17	85	3	15	0.63
3	Jump rope speed for 10s (times)	13	65	7	35	14	70	6	30	0.11
4	Jump and bend knees for 10 seconds	16	80	4	20	15	75	5	25	0.14
5	Jump rope 10s (times)	17	85	3	15	15	75	5	25	0.63
6	Jump rope 30s (times)	11	55	9	45	12	60	8	40	0.10
7	Knee retraction 20 times (s)	15	75	5	25	16	80	4	20	0.14
8	***Moving and kick at 5 target (s)***	***17***	***85***	***3***	***15***	***18***	***90***	***2***	***10***	***0.23***
9	Balance on 1 leg and kick to the abdomen 20 times (s)	14	70	6	30	14	70	6	30	0.00
10	***Standing and kick right leg into the stomach area 10s (times)***	***20***	***100***	***0***	***0***	***19***	***95***	***1***	***5***	***1.03***
11	***Standing and kick right leg into the face area 10s (times)***	***19***	***95***	***1***	***5***	***19***	***95***	***1***	***5***	***0.00***
12	***Kick right right into the abdomen for 10 seconds (times)***	***20***	***100***	***0***	***0***	***20***	***100***	***0***	***0***	***0.00***
13	Standing and kick right leg into the face area for 10 seconds (times)	15	75	5	25	15	75	5	25	0.00
14	***Standing and kick left leg into the abdomen for 10 seconds (times)***	***18***	***90***	***2***	***19***	***18***	***90***	***2***	***10***	***0.46***
15	Standing and kick left leg into the face area for 10 seconds (times)	16	80	4	20	15	75	5	25	0.14
16	Kick left leg into the abdomen for 10 seconds (times)	14	70	6	30	13	65	7	35	0.11
17	Kick left leg into the face area for 10 seconds (times)	11	55	9	45	11	55	9	45	0.00

Table 2 shows that in all results observed through two interviews of the tests, there is $\chi 2$ from 0.00 to 1.03 < $\chi 2$ table = 3.84 at the probability threshold P>0.05, so the difference in the two observed values has no statistical significance. Therefore, the results of the interviews with experts, trainers and lecturers have a high consensus on the answers.

Carrying out the reliability check of the tests also found that the reliability coefficient between the two tests to evaluate the leg speed of the male athlete Vovinam team FPT University Ho Chi Minh City has a value of $r_{calculate}$ from 0.80 to 0.86 (with P<0.05).

Thus, the test to assess the leg speed of male athletes from the Vovinam team at FPT University in Ho Chi Minh City has average reliability. This shows that the above test system is reliable and feasible to evaluate the leg stroke speed of the male athlete of the FPT University vovinam team in Ho Chi Minh City.

Through 2 research steps, the topic has identified 6 tests to assess leg speed for athletes of the Vovinam team at FPT University in Ho Chi Minh City, including the following tests:

1) Single reflex with eyes and feet (ms);
2) Moving and kick at 5 target (s);
3) Standing and kick right leg into the stomach area 10s (times);
4) Standing and kick right leg into the face area 10s (times);
5) Kick right right into the abdomen for 10 seconds (times);
6) Standing and kick left leg into the abdomen for 10 seconds (times).

3.2.2. Evaluating the effectiveness of selected exercises for inclusion in the application

To evaluate the effectiveness of some selected exercises and put them into the application, we evaluated the growth rate of the leg speed of the male athlete Vovinam FPT University Ho Chi Minh City after the experiment. The results of the study are shown in Table 3 and Figure 1.

Table 3: Growth rate of leg swing speed of male athletes from the Vovinam team FPT University Ho Chi Minh City

Parameters	**Tests**					
	Single reflex with eyes and feet (ms)	**Moving and kick at 5 target (s)**	**Standing and kick right leg into the stomach area 10s (times)**	**Standing and kick right leg into the face area 10s (times)**	**Kick right right into the abdomen for 10 seconds (times)**	**Standing and kick left leg into the abdomen for 10 seconds (times)**
W	10.9	3.8	4.2	5.2	7.5	5.8
t	3.4	14.2	5.7	5	10.4	6.2
$\overline{W\%}$	6.2					
P	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Df = n-1, $t_{0.05}$ = 2.201						

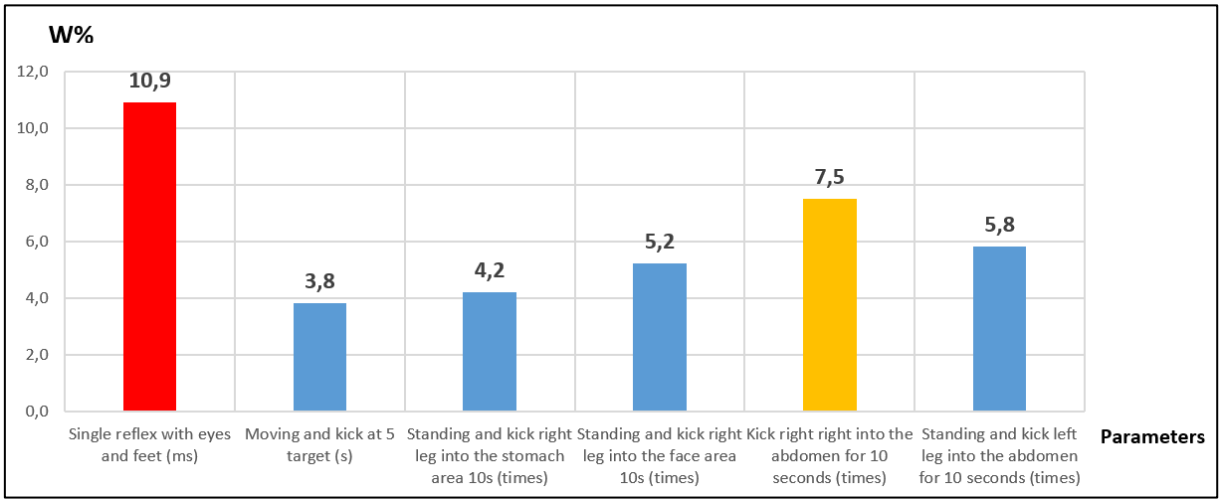

Figure 1: The growth rate of the foot swing speed of the Vovinam male athlete of FPT University, Ho Chi Minh City

Table 3 and Figure 1 show that, after experimenting, all the tests to check the leg speed of the male athletes of the Vovinam team at FPT University in Ho Chi Minh City have a great and significant growth ($t_{calculated} \geq t_{05}$ at the probability threshold $P < 0.05$. Average growth rate $\overline{W\%} = 6.2$. In which, the test with the highest growth rate is the single-eye - leg reflex (ms) with $\overline{W\%} = 10.9$ %.. While the test has the lowest growth rate, it is a 5 target (s) cross with $\overline{W\%} = 3.8\%$.

Thereby, the exercises selected and put into application have shown good effect on the development of foot speed of the Vovinam male athlete of FPT University, Ho Chi Minh City. However, the level of impact and development shown by the evaluation tests for athletes is different.

4. Conclusion

Through the research steps, the topic has selected 24 professional exercises to put into application and 6 tests used to evaluate the leg stroke speed of the male Vovinam team athlete at FPT University in Ho Chi Minh City.

After a period of the experiment, it has been shown that the development of the leg speed of the Vovinam male athlete of FPT University in Ho Chi Minh City has increased markedly. From there, it shows a clear effect in the positive direction of 24 exercises that have been selected and applied to this subject.

Conflict of Interest Statement

The authors declare no conflicts of interest toward the article.

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