

CHARACTERISTICS AND SPEED STRENGTH CHANGES OF FOOTWORK IN THE PEOPLE'S PUBLIC SECURITY'S MARTIAL ART OF MALE STUDENTS IN ARMED POLICE INTERMEDIATE SCHOOL AFTER 1 YEAR OF TRAINING

Nguyen Duy Quyet⁽¹⁾
Nguyen Van Long⁽²⁾

Abstract:

The leg-blow technique is considered to be an indispensable content of People's Public Security's martial art, which is thoroughly used on both the offensive and the defensive. Therefore, footwork's speed training plays a role and its meaning is very important. The initial research results have shown the situation of speed strength changes of footwork in People's Public Security's martial arts for male students of the Armed Police Intermediate School after 1 year training.

Keywords: Speed strength, leg-blow technique, People's Public Security's Martial Arts.

INTRODUCTION

Martial arts of People's Public Security are considered sharp weapons and tools to support professional measures to suppress criminals. Therefore, the system of leg-blow techniques is considered an indispensable content in the martial art of People's Public Security. The blow-leg technique in People's Public Martial Arts is exploited and used thoroughly on both offensive and defensive sides. Each attack has both a clear attack and a defensive characteristic. Therefore, developing the power of blow-leg speed for soldiers in the People's Public Security is considered an important task in the training program. Hence, the determination of the theoretical basis, as well as the means and training methods based on science, will help to enhance the power of speed in the leg-blow technique in martial arts of People's Public Security in a more effective way.

RESEARCH METHODS

The research methods used include: method of analyzing and synthesizing documents; pedagogical testing methods; biomechanical test methods; statistical mathematical methods.

RESULTS AND DISCUSSION

1. Determine the tests to assess the power of leg-blow technique in martial arts of the People's Public Security for male students of the Armed Police Intermediate School

Through researching professional materials related to the research problem and understanding the reality of the training, testing of the power of leg-blow's speed in martial arts, based on interviews results with experts and reliable determination, notification of the test, we have selected 10 qualified tests in speed strength evaluation in martial arts of People's Public Security for male students in Armed Police Intermediate School, including:

Group of professional physical factors: High jump with momentum (cm); High jump (cm); Long jump (cm).

Group of technical factors: Round kick into the fixed target for 10s (times); horizontal kick into the fixed target for 10s (times); Back kick into the fixed target for 10s (times); Move and round kick, superior axe kick for 10s (times); Move and round kick with 2 legs to the goal for 10s (times); Hook kick with the two feet into the

(1) PhD, Hanoi University of Physical Education and Sports

(2) Master, Armed Police Intermediate School

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goal for 10s (times); High speed kick the opposite 2 targets 2.5m apart for 10s (times).

2. The results of monitoring and checking and assessing the speed strength of leg-blow in martial arts of the People's Public Security for male students of Armed Police Intermediate School after 1 year of training

In order to understand the development of changes of speed strength in martial arts of the People's Public Security for male students of the Armed Police Intermediate School after 1 year of training, the study uses 10 selecting tests, and conduct a test of the power of the leg-blow's speed for men at the Armed Police Intermediate

School at the beginning, after 6 months and after 12 months of training. The test content includes 10 pedagogical tests as described above. During testing process, besides using 10 pedagogical tests, the study uses the automatic SM102 system to measure the impulsiveness of attack. This is a system that records the impulseness of an attack on a measured soft inflatable jacket. The test subjects are male students of the Armed Police Intermediate School. The SM102 system is used for some of the following technical tests: 1) round kick; 2) back kick; 3) hook kick with two legs.

Table 1. Characteristics and strength changes of leg-blow in People's Public Security's martial arts for male students of Armed Police Intermediate School (n = 55)

No.	Test	Test result ($\bar{x} \pm \delta$)			Difference			Growth rate			P
		At the beginning (1)	After 6 months (2)	After 12 months (3)	t _{1,2}	t _{2,3}	t _{1,3}	W _{1,2}	W _{2,3}	W _{1,3}	
1	High jump with momentum (cm)	211.35±11.62	215.45±12.60	219.54±13.57	1,772	1,640	3,399	1,919	1,883	3,801	<0.05
2	High jump (cm)	207.15±9.32	210.75±10.71	214.35±12.09	1,881	1,653	3,498	1,723	1,694	3,416	<0.05
3	Long jump (cm)	197.85±9.99	201.56±10.92	205.26±11.85	1,856	1,705	3,545	1,855	1,821	3,676	<0.05
4	Round kick into the fixed goal for 10s (times)	17.17±0.88	17.51±0.96	17.85±1.04	1,930	1,780	3,694	1,961	1,923	3,883	<0.05
5	Horizontal kick to the fixed goal 10s (times)	19.15±0.93	19.48±1.03	19.81±1.13	1,765	1,601	3,346	1,709	1,680	3,388	<0.05
6	Back kick into the fixed target 10s (times)	16.33±0.71	16.58±0.82	16.83±0.94	1,708	1,484	3,152	1,519	1,497	3,016	<0.05
7	Move, round kick and superior axe kick for 10s (times)	9.67±0.44	9.84±0.47	10.01±0.49	1,954	1,862	3,810	1,743	1,713	3,455	<0.05
8	Move, round kick with 2 legs to the goal 10s(times)	8.46±0.40	8.60±0.42	8.74±0.44	1,784	1,705	3,485	1,641	1,615	3,256	<0.05
9	Hook kick with two feet to the goal 10s (times)	14.25±0.75	14.51±0.79	14.77±0.83	1,773	1,684	3,451	1,808	1,776	3,584	<0.05
10	Speed kick the opposite 2 targets 2.5m high 10s (times)	16.15±0.82	16.42±0.86	16.69±0.91	1,687	1,597	3,277	1,658	1,631	3,289	<0.05
	W							1,754	1,723	3,476	

Table 2. Characteristics and evolution of dynamical index assessing the power of leg-blow in martial arts of the People's Public Security for male students of the Armed Police Intermediate School (n = 55)

No	Technical criteria	Test result ($\bar{x} \pm \delta$)			Difference			Growth rate			P
		Beginning (1)	After 6 months (2)	After 12 months (3)	t _{1,2}	t _{2,3}	t _{1,3}	W _{1,2}	W _{2,3}	W _{1,3}	
I. Round kick technique											
1.	Reaction time T (ms)	380.78±17.14	387.28±18.08	393.77±19.02	1,934	1,836	3,763	1,691	1,663	3,354	<0.05
2.	Time of using force t (ms)	16.75±0.73	17.01±0.77	17.27±0.81	1,820	1,726	3,540	1,540	1,517	3,057	<0.05
3.	Peak force (F) (kG)	207.78±11.46	211.56±11.03	215.33±10.61	1,760	1,829	3,585	1,800	1,769	3,569	<0.05
4.	Impulsiveness (P = F t) (kGms)	3480.32±181.50	3539.34±197.06	3598.36±212.62	1,634	1,510	3,132	1,682	1,654	3,335	<0.05
5.	Strength index (SQ=FIP/T/100)	18.99±1.01	19.33±1.05	19.68±1.10	1,743	1,670	3,409	1,791	1,759	3,550	<0.05
II. Back kick technique											
1.	Reaction time T (ms)	365.67±16.46	371.12±17.43	376.57±18.41	1,686	1,594	3,274	1,479	1,458	2,937	<0.05
2.	Time of using force t (ms)	37.75±1.64	38.30±1.74	38.84±1.84	1,689	1,596	3,278	1,433	1,413	2,846	<0.05
3.	Peak force (F) (kG)	189.89±10.47	193.42±10.13	196.94±9.78	1,795	1,857	3,649	1,839	1,806	3,645	<0.05
4.	Impulsiveness (P = F t) (kGms)	7168.35±373.83	7299.74±410.74	7431.14±447.65	1,755	1,604	3,342	1,816	1,784	3,600	<0.05
5.	Strength index (SQ=FIP/T/100)	37.22±2.43	38.04±2.47	38.86±2.51	1,756	1,728	3,482	2,176	2,132	4,308	<0.05
III. Hook kick with 2 legs											
1.	Reaction time T (ms)	304.43±13.70	309.29±14.60	314.14±15.50	1,798	1,691	3,481	1,582	1,558	3,139	<0.05
2.	Time of using force t (ms)	17.78±0.77	18.05±0.80	18.31±0.83	1,764	1,703	3,465	1,479	1,458	2,937	<0.05
3.	Peak force (F) (kG)	177.53±9.79	180.87±9.34	184.2±8.89	1,828	1,918	3,740	1,861	1,827	3,688	<0.05
4.	Impulsiveness (P = F t) (kGms)	3156.48±164.61	3212.30±173.98	3268.11±183.34	1,728	1,638	3,360	1,753	1,723	3,475	<0.05
5.	Strength index (SQ=FIP/T/100)	18.41±1.20	18.79±1.27	19.16±1.34	1,604	1,519	3,117	2,032	1,992	4,023	<0.05
	W							1,730	1,701	3,431	



Developing leg strength is an indispensable element in the martial arts training for polices (photo source: <https://www.baogiaothong.vn>)

This test result will be compared with the stage test results (after 6 months, after 12 months) in order to assess the degree of development of the speed strength of leg-blow in martial arts of the People's Public Security during the workout. The results obtained as shown in tables 1 and 2 show:

Pedagogical test results on 10 pedagogical tests and 03 indicators of technical strength of leg-blow during the beginning and after 6 months, as well as after 6 months to after 12 months do not show any significant difference ($t_{\text{calculated}} < t_{\text{table}}$ at probability threshold $P > 0.05$); At the same time, the growth rate of the tests does not have a clear growth. On average, it increases from 1,701% to 1,754% after 6 months.

After 12 months, the test results of the study subjects compared to the beginning of examination shows significant differences ($t_{\text{calculated}} > t_{\text{table}}$ at probability threshold $P < 0.05$). The test result's growth rate after 12 months of training has increased significantly compared to the beginning. In other words, the test results assessing the leg-blow's speed strength have shown a clear growth after 12 months of training, the average growth is from 3,431% to 3,476%.

CONCLUSION

1) The study results have selected 10 professional test applied in assessing the speed strength of leg-blow in martial arts of People's Public Security for male students of Armed Police Intermediate School. Through scientific

basis testing, the above 10 tests have ensured the notification and necessary statistical reliability (with $P < 0.05$).

2) Developments of pedagogical test results on 10 tests and biomechanical tests on 03 leg-blow techniques of male students of Armed Police Intermediate School after 1 year of training have confirmed the difference as well as the clear growth rate in test results after 1 year of training compared to the beginning. Therefore, it can be affirmed that the effectiveness in assessing the speed strength of leg-blow in martial arts of People's Public Security through selecting tests and testing methods.

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Main responsible: Nguyen Duy Quyet

Email: ndquyet.tdh@moet.edu.vn)