



SELECTING EXERCISES TO IMPROVE LONG JUMP PERFORMANCE FOR K54 MALE STUDENTS OF NAM DINH UNIVERSITY OF TECHNOLOGY EDUCATION

Nguyen Trung Kien¹,
Nguyen Duc Anh²,
Tran Van Dong³ⁱ,
Lê Trung Kiên⁴,
Nguyen Thuy Ngan⁵

¹MSc.,

Bac Ninh Sport University,
Vietnam

²PhD,

Bac Ninh Sport University,
Vietnam

³MSc.,

Nam Dinh University of Technology Education,
Vietnam

⁴PhD,

Thai Nguyen University of Sciences,
Vietnam

⁵MSc.,

Ha Noi University of Physical Education and Sport,
Vietnam

Abstract:

Using regular scientific research methods, 18 exercises were selected to improve long jump performance for K54 male students at Nam Dinh University of Technology Education. Initial application of selected exercises in practice has shown good effectiveness in improving long jump performance for K54 male students at the Nam Dinh University of Technology Education.

Keywords: exercise, long jump, K54 male students, Nam Dinh University of Technology Education

1. Introduction

Over the years, the Department of Physical Education at Nam Dinh University Of Technology Education has had many innovative, creative and positive activities in

ⁱ Correspondence: email dongspktnđ@gmail.com

developing Physical Education activities for K54 male students of the University such as: regularly innovative programs to meet the training of comprehensive human development; improve the qualifications of teachers, equip facilities and grounds, provide adequate training tools to best serve the main course teaching; develop extracurricular sports movements, sports competitions and achieve many encouraging results.

Long jump is one of the main learning contents, a mandatory content of the Physical Education subject for students of the University. However, in teaching practice, the long jump performance of K54 male students at the University is still not good. Through direct discussions with lecturers teaching Physical Education at the University, the main reason leading to the above situation is the lack of appropriate and effective exercises to develop student performance. Therefore, researching and selecting exercises to improve long jump performance for K54 male students at the Nam Dinh University of Technology Education is a necessary, urgent and practical issue.

2. Research Method

During the research process, we used the following methods:

- Document analysis and synthesis method;
- Interview method;
- Pedagogical observation method;
- Experimental method of pedagogy; and
- Mathematical and statistical methods.

3. Research Results and Discussion

3.1 Current Status of Factors Ensuring the Teaching and Learning of Physical Education at the Nam Dinh University of Technology Education

Through studying the current status of Physical Education teaching staff; regarding facilities to serve the teaching of long jump for K54 male students; regarding the number of physical education teaching sessions of lecturers; regarding the long jump performance of K54 male students of the Nam Dinh University of Technology Education, it shows that:

- The team of highly qualified Long Jump instructors accounts for 14.28%, all of whom are Masters - main instructors with good ability in teaching long jump for K54 male students, including the content curricular and extracurricular teaching.
- Facilities for learning Long Jump such as: training ground, equipment for the subject, long jump pit, jumping board are all of good quality and can ensure good teaching of Physical Education. Through this, it can be seen that: The Board of Rectors and the Department of Physical Education are very interested and pay attention to physical education work in the university.

- The number of teaching sessions per week for lecturers is 6-7 sessions per week which is relatively enough, lecturers are not overloaded with workload and labor.
- The initial K54 male students' performance of 3.35 m was much lower than the long jump performance of male students of the above courses at the same time who had not yet studied long jump. This is also the motivation for the project to be researched.

3.2 Selection of Exercises to Improve Long Jump Performance for K54 Male Students of Nam Dinh University of Technology Education

Through analyzing and collecting documents related to the long jump subject, we selected 22 exercises, including 8 exercises belonging to the technical group and 14 exercises belonging to the supplementary group and physical group.

After collecting 22 exercises, in order to select exercises to objectively and scientifically improve long jump performance, the project conducted interviews with experts and teachers who teach Physical Education with seniority. The results are presented in Table 1.

Table 1: Selection of Exercises to Improve Long Jump Performance for Research Subjects (n = 11)

S/N	Exercise name	First time		Second time	
		m _i	%	m _i	%
I	Technical exercise group				
1	Jump in-place, 5 groups, rest 2 minutes between groups	10	90.91	11	100
2	Jump in -place, 5 groups, rest 2 minutes between groups	9	81.82	10	90.91
3	Jump and walk on the track in 5 groups, rest for 2 minutes between groups	10	90.91	9	81.82
4	Jump and walk in the sand pit 7 groups, rest for 2 minutes between groups	11	100	10	90.91
5	sand pit fall, Jump in -place, sand pitfall with 2 feet in 7 groups, rest 30 seconds between groups.	8	72.73	9	81.82
6	Long jump with a short momentum of 3 steps in 5 groups, rest 2 minutes between groups	11	100	11	100
7	Long jump with check momentum (medium momentum) 5 groups, rest 2 minutes between groups	10	90.91	11	100
8	Compete, test, evaluate results	11	100	10	90.91
II	Physical exercise group				
9	20kg-dumbbell carried on a 30cm high platform in place for 20 seconds x 3 groups, rest 2 minutes between groups	9	81.82	10	90.91
10	400m speed run: 30m fast, 30m slow, 3 groups, rest 2 minutes between groups	6	54.55	7	63.64
11	30m high-speed run, 3 groups, rest 2 seconds between groups	8	72.73	6	54.55
12	60m high start run in 3 groups, rest 2 minutes between groups	6	54.55	6	54.55
13	Long jump in place and sand pit fall with 2 legs, 3 groups, rest 2 minutes between groups	10	90.91	8	72.73
14	Sand pit continuous jump (with legs as high as possible)	10	90.91	9	81.82

	for 20 seconds, 3 groups, rest 2 minutes between groups				
15	Thigh-raising run in the sand pit for 30 seconds, 3 groups, rest 2 minutes between groups	8	72.73	6	54.55
16	20kg-dumbbell carry and sit down and stand up (level of sitting depends on ability) 30 seconds, 3 groups, rest 2 minutes between groups	6	54.55	8	72.73
17	Stair jumps for 20 seconds, 3 groups, rest 2 minutes between groups	7	63.64	8	72.73
18	20kg-dumbbell carry and run with raising thigh for 30 seconds, 3 groups, rest 2 minutes between groups	10	90.91	8	72.73
19	30m low-start running, 3 groups, resting 2 minutes between groups	5	45.45	5	45.45
20	50m carry partner and run, 3 groups, resting 3 minutes in between groups	4	36.36	5	45.45
21	Back muscles, abdominal muscles, lying face down on hands, 3 groups, rest 2 minutes in between groups	2	18.18	2	18.18
22	20m 30kg-dumbbell carry and walk, 3 groups x 3 times, rest 2 minutes between sets	1	9.09	3	27.27

Table 1 shows that: there are 18 exercises approved by experts from 50% or more that they can be used to improve long jump performance for research subjects, and 4 exercises have low approval, below 50%. Eliminated exercises include 30m low start run, 3 groups x 3 times, rest 2 minutes between groups; 50m carry partner and run, 3 groups x 3 times, rest 3 minutes between groups; back muscles, abdominal muscles, lying face down on hands, 3 groups x 10 times, rest 2 minutes between groups and 20m 30kg-dumbbell carry and walk, 3 groups x 3 times, rest 2 minutes in between groups.

However, to ensure objectivity and scientificity, the project conducts a second interview and calculates the Wilcoxon index to evaluate the objectivity between the two interviews. The results are presented in Table 2.

Table 2: Determination of Reliability and Objectivity of the Two Interviews

Ranks				
		N	Mean Rank	Sum of Ranks
L2 - L1	Negative Ranks	8a	11	88
	Positive Ranks	10b	8.3	83
	Ties	4c		
	Total	22		
a. L2 < L1; b. L2 > L1; c. L2 = L1				
Test Statistics ^a				
		L2 - L1		
Z		-.113 ^b		
Asymp. Sig. (2-tailed)		0.91		
a. Wilcoxon Signed Ranks Test; b. Based on positive ranks.				

The results of Table 2 show that: the test results of Wilcoxon with Sig. = 0.910 > 0.05 confirms that there is no difference between the two interviews. Therefore, we selected

exercises with an approval rate of over 50% as exercises to improve long jump performance for experimental subjects. We eliminated 4 exercises with a low approval rate of below 50%.

3.3 Evaluation of the Effectiveness of Exercises to Improve Long Jump Performance for K54 Male Students at the Nam Dinh University of Technology Education

3.3.1 Experimental Organization

- Experimental method: Parallel comparison experiment.
- Experimental time: During regular class hours, including 30 lessons of part 4 of Physical Education. Conduct the experiment for 10 weeks with 3 periods per week (Monday, Wednesday and Friday) according to the timetable assigned by the Training Department, each lesson is 45 minutes. Depending on each training session, the exercises are appropriately interwoven together.
- Experimental location: Nam Dinh University of Technology Education.
- Experimental subjects: 128 K54 male students of Nam Dinh University of Technology Education divided into two groups:
 - The control group of 64 male students exercised according to the old and commonly used program;
 - Experimental group of 64 male students: Practice the same program as the control group but apply the selected exercises and construction process shown in Table 3. At the end of each training session, physical fitness development exercises are used.

3.3.2 Experimental Results

To ensure objectivity, before the experiment, we tested the training performance of the experimental group and control group.

Table 3: Experimental Process of Applying Exercises to Improve Long Jump performance for K54 Male Students at Nam Dinh University of Technology Education

SN	Exercises	T1			T2			T3			T4			T5			T6			T7			T8			T9			T10				
		2	4	6	2	4	6	2	4	6	2	4	6	2	4	6	2	4	6	2	4	6	2	4	6	2	4	6	2	4	6		
1	Ex 1	x			x				x				x				x				x				x								
2	Ex 2		x				x					x					x				x				x				x				
3	Ex 3	x				x					x					x					x				x								
4	Ex 4		x			x						x					x				x				x							x	
5	Ex 5			x			x				x					x					x				x				x				
6	Ex 6				x				x				x					x				x				x							
7	Ex 7			x					x							x					x					x							
8	Ex 8																																x
9	Ex 9	x					x																										x
10	Ex 10		x						x																								
11	Ex 11	x																															x
12	Ex 12			x																													x
13	Ex 13		x																														x

14	Ex 14	x			x				x				x				x			x
15	Ex 15			x				x					x				x			x
16	Ex 16		x			x				x			x				x			x
17	Ex 17			x				x					x				x			x
18	Ex 18		x			x				x			x				x			x

The tests used during the experiment were: Running 30m from a low start run (s) and long jump (m) with medium momentum. The results are presented in Table 4.

Table 4: Pre-test results of the experimental group and control group (n=128)

Index	30m low start run (s)		Long jump (m)	
	Control (n = 64)	Experimental (n = 64)	Control (n = 64)	Experimental (n = 64)
x	5.12s	5.19s	3.41m	3.31m
@C	5.712		6.418	
t _{calc}	1.459		1.225	
t _{table}	1.96			
P	0.05			

Table 4 shows that: in both the 30m low start run (s) and Long jump (m both have $t_{calc} = 1.225 - 1.459 < t_{table} = 1.960$ at probability threshold $P > 0.05$. Thus, the difference in the training performance of two groups of K54 male students of Nam Dinh University of Technology Education is equivalent.

Through the experiment, we applied the exercises we selected to teach the experimental group, while the control group followed the old exercises. We tested and evaluated the training effectiveness of 2 groups. The results are presented in Table 5.

Table 5: Post-experiment Results of the Experiment Group and Control Group

Index	30m low start run (s)		Long jump (m)	
	Control (n = 64)	Experimental (n = 64)	Control (n = 64)	Experimental (n = 64)
x	4.72	4.21	3.56	3.73
@C	1.162		0.725	
T _{calc}	2.618		2.903	
T _{table}	1.960			
P	0.05			

The results of Table 5 show that: after 10 weeks of practice, the experimental group and control group had a difference in their training level. In both experiments, the 30m low start run (s) and Long jump (m) have $t_{calc} = 2.618 - 2.903 > t_{table} = 1.960$ at probability threshold $P < 0.05$. To have a clearer view of the effectiveness of the exercises on the exercise level of the control and experimental groups, we determined the growth level of the two groups. The results are presented in Table 6 and Chart 1.

Table 6: Level of Growth in Test Results of the experimental Group and Control Group After the Experiment

S/N	Test	Experimental group		W%	Control group		W%	Growth gap
		Pre-experiment	Post-experiment		Pre-experiment	Post-experiment		
1	30m low start run (s)	5.19	4.21	17.19	5.12	4.72	6.76	10.44
2	Long jump (m)	3.31	3.73	21.05	3.41	3.56	10.27	10.79

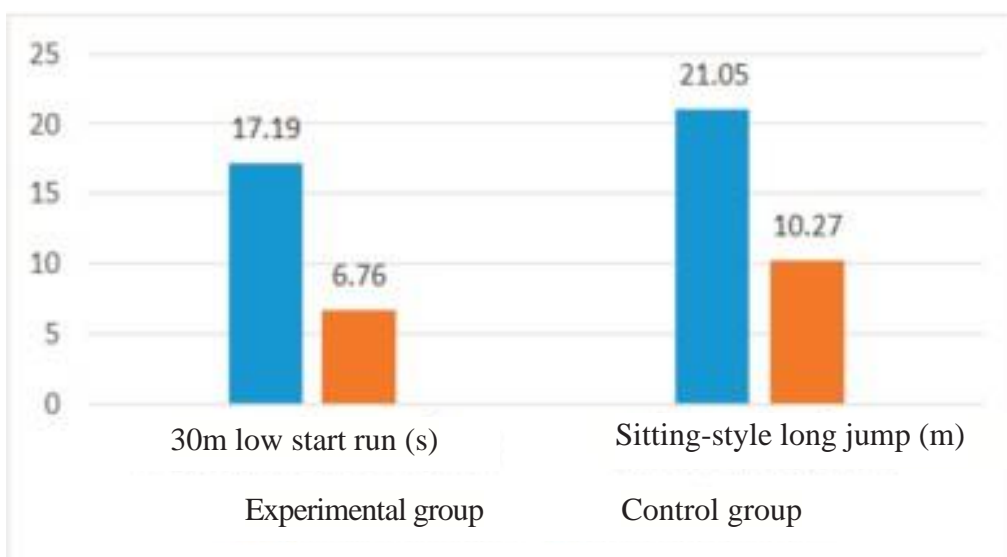


Chart 1: Growth Chart of Test Results of the Experimental group and Control Group After the Experiment

Table 6 and Chart 1 show that: the performance of the experimental group is better than that of the control group. This proves that the exercises we selected have a good effect in improving long jump performance for K54 male students at Nam Dinh University of Technology Education.

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4. Conclusion

- 1) 18 exercises were selected to improve long jump performance for K54 female and male students at Nam Dinh University of Technology Education, ensuring objectivity and scientificity.
- 2) Through experiments and evaluation of the effectiveness of the exercises, it has been shown that: 18 exercises applied in the experimental process have initially been effective in improving long jump performance for K54 male students at Nam

Dinh University of Technology Education, with the difference in growth rate of the two groups after 10 weeks of experiment in both experiments being over 10%.

Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Author(s)

Nguyen Trung Kien, currently I am a lecturer at Bac Ninh Sport University, Vietnam, I have been working for 18 years, my main field of research is physical education and sports training.

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