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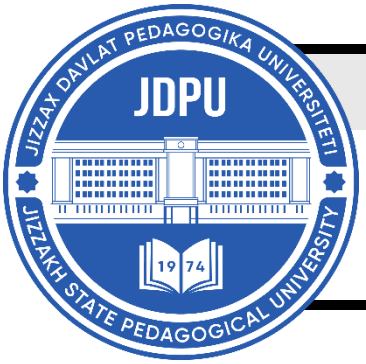

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THE RELATIONSHIP BETWEEN PHYSICAL FITNESS LEVEL AND SPORTS PERFORMANCE IN FEMALE LONG JUMPERS

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ABOUT ARTICLE

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Abstract: This study examines and analyzes the dynamics of the relationship between physical fitness levels and sports performance in female long jumpers, based on the effective means and methods of organizing training sessions. In the research, training loads were developed and applied in practice, taking into account the individual capabilities of female long jumpers and the content of their multi-year training stages.

Purpose:

To determine the impact of physical fitness level on sports performance in female long jumpers and to analyze their interrelationship based on pedagogical experimentation.

Research Objectives:

1. To study the development of physical fitness levels in female long jumpers based on the analysis of scientific and methodological literature.

2. To identify the factors affecting sports performance in terms of physical fitness in female long jumpers.

3. To develop and justify a set of selected exercises in pedagogical practice based on the individual condition and physical fitness levels of female long jumpers.

Overview:

The jumping disciplines in athletics are distinguished by their technical complexity, aesthetic appeal, and strong emotional impact on spectators. In particular, the long jump comprises a complex set of technical movements including the approach run, take-off, flight phase, and landing, all of which require a high level of physical fitness from the athlete. This sport demands not only strength and speed but also flexibility, agility, and endurance — a harmonious blend of essential physical qualities.

At the current stage of modern sports development, assessing the physical fitness level of long jump athletes, especially females, through specific tests and studying how these indicators affect competition results has become a scientifically and practically relevant issue. This is because an athlete's individual level of preparedness and development of physical qualities directly influences their competition outcomes. Achieving high-level success in sports depends not only on personal effort and training but also on the integrated and effective functioning of the overall sports system.

The decrees and decisions adopted by the President of the Republic of Uzbekistan concerning the development of physical education and sports serve as a vital legal foundation aimed at further improving the athlete training system, strengthening sports infrastructure, and promoting a healthy lifestyle.

From this perspective, conducting a systematic and scientifically grounded study of the impact of physical fitness levels on sports performance in female long jumpers is a pressing scientific issue. Unfortunately, up to the present day, there has been an insufficient number of comprehensive studies analyzing the preparedness of athletes and the factors influencing their competition outcomes in this field.

This research aims to develop specialized training plans for female long jumpers, optimize the training process, and improve results. The study, conducted through pedagogical experimentation, seeks to identify the relationship between athletes' physical fitness levels and their sports performance, and to propose effective training systems based on modern approaches.

Given the rapid development of the sports sector today, there is an increasing need for innovative, advanced technology-based approaches, as well as individualized planning and monitoring systems in the athlete training process. To further improve the achievements of athletes, special attention must be paid to the issue of functional training by enhancing the

content, form, and methods of training. Functional training helps manage the athlete's energy reserves effectively, ensures the body's adaptability during training and competitions, and enables the efficient and optimal execution of movements. Therefore, an insufficient level of functional training may increase the risk of injury or negatively affect the athlete's health.

Research Results and Their Discussion

The results of the conducted research showed a clear relationship between the physical fitness level and sports performance in female long jumpers. In particular, physical qualities such as strength, speed, explosive power, flexibility, and endurance play a significant role in achieving successful results.

In a technically complex sport like the long jump, factors such as leg and core muscle strength, joint mobility (flexibility), running speed, and overall endurance directly affect performance. Each of these attributes enables the athlete to optimally execute the phases of the jump — approach run, take-off, flight, and landing.

It was found during the research that athletes who achieved high results demonstrated the following common characteristics:

- Athletes with higher running speed were better able to utilize kinetic energy efficiently during the take-off phase.
- Those with greater strength and explosive power achieved more effective jump distances.
- Athletes with higher joint mobility (flexibility) performed the flight and landing phases more accurately from a technical standpoint.

Taking these factors into account, it can be stated that each element of physical fitness has a certain impact on an athlete's performance. However, these qualities must be developed in a balanced and purposeful manner individually for each athlete, as their physiological, anatomical-biomechanical, and psychological characteristics differ from one another.

In addition, the long jump requires athletes to possess high levels of coordination abilities and explosive power. Our practical observations showed that female athletes with a high level of physical fitness consistently achieved high results in competitions. Their muscular strength, joint mobility, and overall physical condition are among the main factors contributing to their success in sports.

During the research, we analyzed the physical fitness levels of female student long jumpers in relation to their sports results and identified a correlation between these variables. Based on these observations, it was determined that training programs can be individualized, and coaching approaches can be optimized.

We assessed their physical fitness using the tests listed below. During our study, based on the physical fitness condition of the female long jumpers, we developed and implemented effective tools and methods for organizing the training sessions throughout the annual training cycle.

Monday:

Light running – 1000 m. General developmental and special exercises. Special running exercises for flexibility: 8-10 times, 4-6 repetitions each. Running with take-offs every 3 steps, 2 times for 100 meters. Jumping from foot to foot 4×10 times. Running with take-off repeated 2 times for 2 meters. Exercises with a barbell weighing 40% of body weight: semi-squat position, jump up 4 times, 8 repetitions each. Repeated acceleration runs: 2 times for 150 meters. Jumping on one leg: 2 times, 15 repetitions each. Slow running – 800 meters.

Tuesday:

400 meters light running. General developmental and special exercises. Acceleration running 4×60 meters, 4 times for 40 meters. Throwing a 4 kg shot put. Throwing forward and backward from different positions – 4×10 times.

Jumping over 5 hurdles 50 cm high with both legs – 4×8 times. Jumping from foot to foot – 4×40 times. Acceleration running 4 times for 40 meters. Exercises with a barbell weighing 40% of body weight: stepping onto a platform 40-50 cm high, 6 times, 10 repetitions each. Various jumps with a barbell weighing 50% of body weight on the shoulders. Repeated acceleration runs for 150-200 meters. Recovery running – 800 meters.

Wednesday:

Slow running – 800 meters. General developmental and special exercises.

Running three steps and long jumping – 4×10 times. Jumping on one leg vertically – 4×15 times. Exercises with a barbell (30% of body weight) on shoulders: high knee running – 4×50 meters, jumping with both legs – 4×20 times. Acceleration runs – 2×150 meters. Slow running – 400 meters.

Thursday:

Rest day (swimming pool).

Friday:

Slow running – 400 meters. General developmental and special exercises – 6-10 sets of 6-10 repetitions. Accelerations – 4×60 meters. Full running (running rhythm) – repeated 6 times. Long jumps with 6-8 steps – 10 times. High jumps using the “straddle” technique – 2×12 times. Throwing a filler ball (1 kg) from various positions – 50 times.

Saturday:

Warm-up exercises – 8-10 minutes. General developmental and special exercises – 6-8 sets of 4-10 repetitions. Speed running – 3×80 meters. Running with take-offs every third step – 3×10 times. Exercises with a barbell (40% of body weight): jumps with changing foot positions – 6×20 times. With barbell (80% of body weight) on shoulders: jumps from semi-squat position – 4×10 times. Throwing a 4 kg shot put from various positions – 50 times. Slow running – 400 meters.

Sunday:

Rest day.

1st table

Comparative analysis of the physical fitness indicators of the experimental group participants after the study.

N	Names	30-meter run (seconds)	100-meter run (seconds)	Running long jump	Standing triple jump	Standing five-step jump	Hopping on one leg over 10 steps on the ladder (seconds)	Throwing a 4 kg shot put forward with both hands from below	Half-squat hold w a barbell weighi 20-25 kg (duratio 1 minute)
1	N-va.Z.	4,6	13,7	5,0	8,1	12,1	4,7	10,7	9
2	Q-va.R	4,8	13,9	5,1	8,3	12,3	4,9	10,9	10
3	U-va.Sh.	4,7	13,8	5,2	8,2	12,2	4,8	11,0	9
4	T-va.F.	4,5	14,0	5,3	8,4	12,4	4,6	10,6	10
5	Q-va.H.	4,6	13,6	5,0	8,1	12,1	4,9	10,8	9,5
6	K-va.Sh.	4,8	14,1	5,2	8,3	12,3	4,7	10,9	9,5
7	R-va.H.	4,7	13,9	5,1	8,2	12,2	4,8	10,7	9
8	S-va.D.	4,6	13,8	5,3	8,1	12,4	4,9	10,9	10
9	E-va.M.	4,9	13,7	5,0	8,4	12,2	4,6	11,1	9,5
10	T-va.E.	4,7	14,0	5,2	8,3	12,3	4,8	10,8	9,5
11	T-va.K.	4,6	13,6	5,0	8,2	12,1	4,7	10,6	9
12	J-va.Sh.	4,9	14,42	6,04	8,42	12,54	5,0	11,28	10
	X	**4,7**	**13,91**	**5,12**	**8,26**	**12,27**	**4,8**	**10,89**	**9,5**
	Σ	**0,04**	**0,07**	**0,08**	**0,03**	**0,04**	**0,04**	**0,06**	**0,12**
	σ	**0,13**	**0,23**	**0,29**	**0,12**	**0,14**	**0,13**	**0,20**	**0,43**
	V	**2,72**	**1,69**	**5,51**	**1,44**	**1,13**	**2,65**	**1,87**	**4,49**

2nd table

Comparative analysis of the physical fitness indicators of the control group participants after the study

N	Names	30-meter run (seconds)	100-meter run (seconds)	Running long jump	Standing triple jump	Standing five-step jump	Hopping on one leg over 10 steps on the ladder (seconds)	Throwing a 4 kg shot put forward with both hands from below	Half-squat hold a barbell weigh 20-25 kg (durat 1 minute)
1	I-va.D.	5,0	14,2	4,2	7,9	12,0	5,0	10,0	8,0
2	A-va.N.	5,1	14,5	4,3	8,0	12,2	5,2	10,1	8,1
3	N-va.D.	5,0	14,3	4,4	8,1	12,3	5,1	10,0	8,2
4	A-va,Sh.	5,1	14,4	4,3	8,0	12,1	5,0	10,2	8,0
5	H-va.K.	5,0	14,2	4,4	8,1	12,0	5,3	10,1	8,4
6	B-va.U.	5,0	14,5	4,2	7,9	12,3	5,2	10,0	8,2
7	R-va.F.	5,1	14,3	4,4	8,0	12,2	5,1	10,0	8,1
8	U-va.S.	5,0	14,2	4,3	8,1	12,1	5,0	10,2	8,0
9	G‘-va.D.	5,1	14,6	4,4	8,0	12,0	5,3	10,0	8,3
10	F-va.F.	5,0	14,3	4,3	8,1	12,4	5,1	10,1	8,0
11	V-va.N.	5,0	14,4	4,3	7,9	12,1	5,0	10,0	8,2
12	A-va.N.	5,0	14,54	4,45	8,12	12,36	6,28	10,9	8,3
X		**5,00**	**14,37**	**4,35**	**8,01**	**12,18**	**5,14**	**10,05**	**8,15**
Σ		**0,06**	**0,04**	**0,02**	**0,02**	**0,04**	**0,10**	**0,07**	**0,04**
σ		**0,20**	**0,14**	**0,08**	**0,09**	**0,14**	**0,35**	**0,25**	**0,14**
V		**3,99**	**0,98**	**1,87**	**1,07**	**1,18**	**6,78**	**2,50**	**1,70**

In conclusion, the results of the conducted comparative pedagogical experiment showed that when the selected special exercise complex is applied appropriately according to the age and gender of the participants, it positively influences the development of their physical, technical-tactical preparedness and motor skills. This exercise complex effectively contributes to improving the sports performance of female student long jumpers and helps them achieve high results in competitions.

The control group of athlete students showed the following results: 5.00 ± 0.20 seconds in the 30-meter run, 14.37 ± 0.14 seconds in the 100-meter run. Long jump with a running approach measured 4.35 ± 0.08 meters, standing triple jump 8.01 ± 0.09 meters, and five-step jump 12.18 ± 0.14 meters. Single-leg hop on a 10-step ladder was 5.14 ± 0.35 seconds, shot put distance was 10.05 ± 0.25 meters, and half-squat with a barbell was performed 8.15 ± 0.14 times.

The experimental group of female athletes showed the following results: 4.7 ± 0.13 seconds in the 30-meter run, 13.91 ± 0.23 seconds in the 100-meter run. Long jump with

running approach measured 5.12 ± 0.29 meters, standing triple jump 8.26 ± 0.12 meters, and five-step jump 12.27 ± 0.14 meters. Single-leg hop on a 10-step ladder was 4.8 ± 0.13 seconds, shot put distance was 10.89 ± 0.20 meters, and half-squat with a barbell was performed 9.5 ± 0.43 times. These results confirm that the experimental group athletes have sufficiently developed physical fitness related to running, jumping, and strength.

Furthermore, the research results demonstrated a clear correlation between the physical fitness of long jump athletes and their sports performance. Specifically, a high level of development in physical qualities such as strength, speed, endurance, flexibility, and explosive power contributes to improving jump technique and enhancing results.

During training, organizing loads progressively based on the age, gender, physical development, and fitness level of the female long jumpers creates a foundation for stable improvement in sports performance and quality transition to subsequent training stages. Systematic development of physical fitness qualities significantly improves athletes' technical and tactical indicators, enabling them to achieve high results in competitions.

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