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MODERN METHODOLOGICAL AND FUNCTIONAL APPROACHES TO DEVELOPING LONG JUMP TECHNIQUE

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Abstract. This article examines methods for developing the functional capacities of track-and-field athletes, with a particular focus on the long jump. The study analyzes a training system aimed at improving athletes’ overall physical preparedness and key motor qualities such as speed, strength, and endurance. In addition, the article substantiates the necessity of enhancing technical and functional performance indicators through the rational selection of exercises, appropriate load regulation, and systematic pedagogical control.
Keywords: running, long jump, take-off, flight phase, technique, speed, preparedness.

Introduction. Analysis of the Long Jump with Run-Up Technique

The technique of the long jump with run-up is conventionally divided into three main phases: the approach run, the take-off, and the flight and landing phases.

Approach Run

The main task of the approach run is to generate optimal horizontal speed and bring the athlete into a favorable position for an effective take-off. In the long jump, the approach run is performed at a speed close to maximal, in contrast to some other jumping events, and therefore requires a high level of coordination and strength.

The length of the approach and the number of strides depend on the athlete’s individual characteristics and level of physical preparedness. Typically, experienced male long jumpers cover a distance of up to 50 meters with approximately 24 running strides, whereas for female athletes the distance is about 40 meters with up to 22 strides.

The approach run can be divided into three stages:

1. The initial acceleration phase;
2. Progressive build-up of speed;
3. Preparation for take-off.

The starting type depends on the athlete’s habitual manner: it may be performed from a stationary position, from light movement, or with a sharp sprinter-style acceleration. The key factor is selecting and maintaining an appropriate rhythm and tempo throughout the run. The athlete should be trained to begin the approach in a consistent, standardized way and to reproduce the same rhythm on each attempt.

When starting from a stationary position, the athlete begins the run from behind the control line: one leg is placed forward, the other is behind with the toes in contact with the ground. Some athletes perform slight rocking motions, alternately shifting body weight from the front leg to the rear leg to find balance. If the approach run is initiated from movement, the athlete must pre-determine precisely which leg will be used for take-off.

During the approach, the movement pattern closely resembles that of a sprint: the trunk is slightly inclined forward, the arms and legs move with large amplitude, and strides are executed rhythmically. The body should move along a straight line, avoiding lateral deviations or unnecessary vertical oscillations. Over the final 3–4 strides the athlete reaches maximal or near-maximal speed, while stride length becomes slightly shorter and leg action becomes more active. In the last stride, the take-off leg extends at the knee and moves backward, making contact with the take-off board with the full foot.

Flight Phase

After take-off, the athlete's body is projected into the air and the flight phase begins. Movements in this phase are directed toward maintaining balance and creating favorable conditions for an efficient landing. The initial velocity generated at take-off (typically around 9.4–9.8 m/s) and the take-off angle determine the trajectory of the flight. The vertical rise of the body's center of mass is usually about 50–70 cm.

The flight phase can be divided into three parts:

1. The ascent;
2. The phase of horizontal progression;
3. Preparation for landing.

The "tucked" (or "hang with bent legs") technique is considered the simplest from a technical standpoint. After take-off, the take-off leg remains bent and extended backward, while the swing leg is brought toward it. The arms are raised upward to assist with balance. As the body begins to descend, the arms move forward and downward; simultaneously, the legs are extended and drawn toward the chest, thus forming a position that facilitates an optimal landing.

The "hang" or "stride" technique ("ko'krak kerib" in local terminology) requires more complex coordination. After take-off, the swing leg is brought backward, and the arms move successively downward and then upward. The athlete maintains a slightly arched position of the trunk during the first half of the flight. In the latter part of the flight, the legs are flexed and brought forward, while the arms are lowered. Ultimately, the jumper assumes the landing position.

Development of Jumping Ability

The development of jumping ability in long jumpers is carried out in two main directions:

1. Gradual acquisition and refinement of long jump technique;
2. Development of specific physical qualities (strength, speed, coordination).

Early and correct acquisition of the basic technique is a crucial factor in achieving high athletic performance at later stages of training. A characteristic feature of the long jump is the high level of muscular effort at the moment of take-off combined with an abrupt change in the direction of movement. As a result, the load transmitted to the take-off leg can reach 4–6 times the athlete's body weight.

Therefore, the process of technical refinement is directly linked to the level of special physical preparedness. Without sufficient strength, speed, and coordination, it is impossible to ensure a stable and efficient take-off, optimal flight posture, and effective

landing. Consequently, modern training methodology must integrate technical drills with targeted development of the functional capabilities of the neuromuscular system, using rational load distribution and continuous pedagogical monitoring.

In order to refine the technique of the long jump with run-up, a number of specific tasks must be addressed:
1. To increase the speed of the approach run.
2. To ensure the stability and reproducibility of the approach – especially at the beginning and at the end of the stride pattern.
3. To maintain a high level of running activity in the final strides while simultaneously preparing the body for take-off.
4. To enhance the explosiveness of the take-off and reduce ground contact time at the moment the take-off leg contacts the board.
5. To achieve dynamic balance during the flight phase while increasing the activity of the shoulder girdle and arms, as well as the amplitude of the swinging leg.
6. To refine flight movements, attaining relaxation and large amplitude in the actions of the legs and arms.
7. To optimize landing mechanics by lowering the body's centre of mass and actively projecting the legs and arms forward prior to ground contact.
8. To use special integrated drills aimed at simultaneously improving both the approach run and the jump itself.

The following methodological recommendations are proposed for developing various abilities in athletes across three main groups of track-and-field events:

1. for sprinters and hurdlers;
2. for jumpers and throwers;
3. for middle- and long-distance runners, as well as race walkers.

Methodology for Developing the Functional Capabilities of Track-and-Field Athletes. In improving the functional capabilities of athletes, it is essential to develop the primary physical qualities in a targeted manner according to the specific event in which the athlete specializes. Accordingly, for athletes in the first group, the leading quality is **speed**; for those in the second group, **speed–strength (power)**; and for athletes in the third group, **endurance** is paramount.

Development of Speed Qualities In sprint and hurdle events, speed is manifested in several distinct forms:
• simple reaction speed to a movement stimulus;
• movement frequency (rate);
• explosiveness or impulsiveness of movements (speed–strength);
• integrated or complex indices of speed performance.

To develop simple reaction speed, exercises are used in which athletes initiate movement in response to a signal (visual or auditory command) over a period of 5–10 seconds. One of the most effective methods is to perform 20–30 m runs from a low or high start at maximal intensity (95–100% of individual maximum) on command. This exercise is repeated 3–4 times, with 1 minute of rest between repetitions and 1–2 minutes between series.

Development of Movement Frequency and Speed–Strength.

To develop movement frequency, the following exercises are recommended:

- relaxed running over 30–40 m;
- running in place for 10–20 seconds;
- uphill running over a 60–80 m distance with a gradient of about 20°;
- resisted running using a towing device over 30–60 m;
- running between markers over 30–50 m;
- running in response to an acoustic signal for 15–30 seconds;
- running with the wind at the back over 60–80 m.

In all of these exercises, running speed should be at or very close to the athlete's maximal capacity (100%). Recovery intervals between repetitions should be approximately 3 minutes, and rest between series should be 8–10 minutes.

To develop speed–strength qualities, running or jumping exercises with additional resistance are widely used. Typically, weight belts of 3–7 kg or ankle weights of 1–1.5 kg are employed. In such exercises, the running distance should not exceed 50 m, and the running speed should be maintained at 80–90% of maximal. Within one series, the exercise is performed 3–4 times, with 3–4 minutes of rest between repetitions and 8–10 minutes between series. As supplementary means, athletes may also use uphill running, stair running, running against the wind, or drills performed with towing or resistive devices.

Conclusion

An analysis of the scientific and methodological literature shows that, although the effectiveness of teaching long jump technique to jumpers has been studied to a considerable extent, the issues of adequately regulating training loads and precisely determining the effectiveness of specific exercises are not fully addressed in a number of studies. Research indicates that some coaches, striving to accelerate the development of physical qualities, tend to excessively increase training loads. When athletes have a low level of basic preparedness, this may lead to adverse physiological consequences.

Therefore, in organizing the training process, it is crucial to take into account the age and physical capabilities of the learners, to individualize load distribution, and to use engaging and motivational forms of practice. Excessive loading can cause fatigue, muscle overstrain, and a decline in the functional state of the organism. Consequently, track-and-field training for school-aged athletes should not only be effective in terms of performance outcomes, but also health-enhancing, engaging, and safe.

REFERENCES:

1. Raximovich, R. U., & Farxodjon o'g'li, A. Y. (2024). YENGIL ATLETIKA SPORT TURIDA OZIQ-OVQAT REJIMI VA UNING ILMIY TAHLILI. *MODELS AND METHODS FOR INCREASING THE EFFICIENCY OF INNOVATIVE RESEARCH*, *4*(40), 22-25.

2. Йигиталиев, А. (2024). ФИЗИЧЕСКАЯ ПОДГОТОВКА В СПОРТИВНОЙ ШКОЛЕ ПО ЛЁГКОЙ АТЛЕТИКЕ. *Академические исследования в современной науке*, *3*(23), 193-196.

3. Ugli, Y. A. F. (2022). CONDITIONS OF USE OF INNOVATIVE EDUCATIONAL TECHNOLOGIES IN PROFESSIONAL TRAINING OF FUTURE SPECIALISTS IN THE FIELD OF PHYSICAL EDUCATION. In *ONLINE-CONFERENCES" PLATFORM* (pp. 89-91).

4. Yigitaliyev, A. F., & Rasulova, R. A. (2024). YOSHLARNI SOG'LOM VOYAGA YETISHLARINI TA'MINLASH MASALASI XALQ OG'ZAKI IJODIDA. *SO 'NGI ILMIY TADQIQOTLAR NAZARIYASI*, *7*(6), 49-51.

5. Yigitaliyev, A. F. O. G. L. (2023). QISQA MASOFAGA YUGURUVCHI SPORTCHILARNI MASHG'ULOTLARINI TASHKIL QILISH USULLARI. *Oriental renaissance: Innovative, educational, natural and social sciences*, *3*(12), 277-280.

6. Radjapov, U., & Abubakir, Y. (2024). O 'QUVCHILARDA SOGLOM TURMUSH TARZINI SHAKLLANTIRISHDA UMUMRIVOJLANTIRUVCHI MASHQLAR VA ULARNI O'TKAZISH. *Международный журнал теории новейших научных исследований*, *2*(9), 131-135.

7. Radjapov, U., & Yigitaliyev, A. (2025). FOOD PRACTICES IN ATHLETICS: A SCIENTIFIC ANALYSIS. *ВЕСТНИК МАГИСТРАТУРЫ*, 28.

8. Farxodjon o'g'li, Y. A. QISQA MASOFAGA YUGURUVCHI SPORTCHILARNI MASHG'ULOTLARINI TASHKIL QILISH USULLARI.