ENHANCEMENT OF PHYSICAL QUALITIES IN ATHLETICS TRAINING: A CONCEPTUAL AND METHODOLOGICAL OVERVIEW

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Abstract. *The article examines the development of physical abilities in school students involved in athletics during regular training sessions conducted in a school setting. The study evaluated the effectiveness of systematic use of a set of special exercises, including circuit training, non-traditional drills associated with rotational accelerations, innovative instructional methods, and movement games. The findings indicate that consistent and targeted application of these training tools contributes to improvements in students' general and sport-specific physical preparedness.*

Key words*: athletics; circuit training; assessment of functional status; training process; long-term training; initial training stage; general physical training; traditional and non-traditional methods; general endurance; strength; agility; flexibility; speed-strength.*

Аннотация. *В статье рассматривается развитие физических качеств у учащихся, занимающихся лёгкой атлетикой, в процессе тренировочных занятий в школьных условиях. В исследовании оценивалась эффективность систематического применения комплекса специальных упражнений, включая круговую тренировку, нетрадиционные упражнения, связанные с вращательными ускорениями, инновационные методы (подходы), а также подвижные игры. Полученные результаты свидетельствуют о том, что целенаправленное и регулярное использование данных средств способствует улучшению показателей общей и специальной физической подготовленности учащихся.*

Ключевые слова: *лёгкая атлетика; круговая тренировка; оценка функционального состояния; тренировочный процесс; многолетняя подготовка; начальная подготовка; общая физическая подготовка; традиционные и нетрадиционные методы; общая выносливость; сила; ловкость; гибкость; скоростно-силовые качества.*

INTRODUCTION

At the initiative of President Shavkat Mirziyoyev, the Development Strategy of the New Uzbekistan was elaborated. It states that "further development of physical education and sport is an important factor in ensuring public health." In addition, Goal 67 of the New Uzbekistan Development Strategy for 2022–2026 emphasizes "increasing the number of citizens who regularly participate in physical education and sports," setting the target to

raise the share of the population regularly engaged in physical activity to 33% by 2026. In particular, at a special meeting devoted to the development of mass sport held on April 1 of the current year, President Shavkat Mirziyoyev set the task of increasing the number of young people aged 7 to 30 involved in mass sport to 6 million. In his Address to the people of Uzbekistan and to the deputies of the Oliy Majlis and senators on December 20, 2022, he also drew special attention to the fact that “there is no work aimed at teaching physical exercises for people of different ages.” In the 2023 Development Strategy program, physical education and sport were given an exceptionally broad place.

Literature Review and Methods. An analysis of scientific literature shows that most studies in athletics focus on the methodological aspects of managing the training process, which includes physical preparedness as well as technical, tactical, and psychological components of training. This is because all running disciplines in athletics are associated, to a certain extent, with the manifestation of endurance. The question of the effectiveness of specific exercises aimed at developing an athlete’s special physical preparedness remains one of the most relevant tasks in the field to this day.

Middle-distance running in athletics is considered a cyclic sport discipline and is characterized by a variable structure of movement actions. It should be noted that middle-distance running is among the popular sports in our republic. At present, dissertations, textbooks, and published teaching manuals prepared by M. Olimov, I. Soliyev, K. Shakirjanova, R. Burnashev, N. To‘xtabayev, and others are available in this area. Information is also provided in the form of theses in various publications. For this reason, conducting scientific research in middle-distance running is highly relevant, because sports training is a multifaceted pedagogical process that includes teaching and learning, воспитание (education and upbringing), physical development of the organism, and the improvement of an athlete’s functional capacities.

In running disciplines, assessing functional status makes it possible to predict the development of particular qualities. At the same time, any motor quality is limited by the level of development of work capacity in aerobic and anaerobic energy-supply modes and by its relationship with intensity zones. Today, it can be observed that in Uzbekistan there have not been enough studies that comprehensively evaluate and analyze middle-distance runners’ morphological and physiological indicators together with general and special preparedness while taking into account the principles of individualization. In sports practice, such an approach allows the training process to be managed effectively, because the magnitude and direction of physical loads’ impact on the athlete’s organism are linked with the dynamics of changes in physical preparedness and technical indicators, which also reflect the individual adaptive capacities of athletes.

Issues of pupils’ and students’ physical preparedness and physical development have been studied by many researchers. For example, the studies of Sh. X. Xankeldiyev, R. S. Salomov, T. S. Usmonxo‘jayev, M. Yu. Yunusova, and Y. Ya. Bondarevskiy identified

insufficient levels of children's physical development and physical preparedness, as well as low motor activity.

Results and Discussion. For all athletes in athletics, the main organizational form of the educational and training process is conducting group or individual training sessions lasting two hours or more, although shorter sessions may also occur. The main sessions can be supplemented with low-intensity morning training that does not impose excessive strain. Complementary homework tasks that reinforce the main training sessions can be completed at other times of the day. In addition to formal athletics training lessons, young athletes may also engage in cross-country running, basketball, and similar activities. Finally, sports competitions represent one of the forms of training and performance. In all forms of training, the following basic rule should be observed: training should begin gradually and then proceed to the main workload.

In preparing young pupil-athletes in athletics, the primary goal at the initial stage of long-term training was to increase the overall level of all-round physical preparedness and develop their physical qualities. Young athletes should possess both sprint speed and marathon endurance. Modern sport requires athletes to continuously develop physical qualities and consistently reach new levels. Therefore, during the preparatory period it is necessary to teach trainees the fundamentals of training and to monitor their application in practice. In other words, for each training session it is important to explain the goals and tasks set for that session and clarify which methods and training means should be used to achieve them.

o.	Training volume and composition	Control group	Experimental group
	Number of weeks	20	20
	Number of training sessions	100	97
	Number of tests/assessments	20	19
	Total training time	9000 min (150 h)	8730 min (145.5 h)
	Of which: traditional methods	7650 min (85%)	6985 min (80%)
	Of which: non-traditional methods	1350 min (15%)	1745 min (20%)
	General endurance	2700 min (30%)	2620 min (30%)
	Speed endurance	1350 min (15%)	1310 min (15%)
	Strength, agility, flexibility	2250 min (25%)	2185 min (25%)
	Speed	1800 min	1745 min

0		(20%)	(20%)
1	*Speed–strength qualities*	900 min (10%)	870 min (10%)

Short academic interpretation : Both groups completed a 20-week program with a comparable distribution of training content across key physical qualities. Compared with the control group, the experimental group allocated a higher proportion of total training time to non-traditional methods (20% vs 15%), reflecting the intervention emphasis.

General Characteristics of Athletics Exercises. **Walking** is the simplest way for humans to move from one place to another and is an excellent form of physical exercise for people of different ages. During long, steady walking, almost all muscles of the body work, and the activity of the cardiovascular system, respiration, and other functional systems increases. As a result, metabolism intensifies. As a physical exercise, ordinary walking has, above all, a health-promoting value. People are taught to walk from early childhood; however, this alone is not sufficient. Everyone should be able to walk correctly, beautifully, and economically. In addition to ordinary walking, there are other forms such as hiking (marching) walking, drill (formation) walking, and **race walking**. In competitions, race walking is considered technically the most difficult, yet very beneficial. Its speed can be about twice that of ordinary walking, but achieving such speed requires not only learning the basic technique of race walking; it also demands considerably more intensive work than ordinary walking, meaning higher energy expenditure. Race walking competitions are usually held on stadium tracks (in the counterclockwise direction) and also on roads—highways, city streets, paths, and similar routes—typically over distances from **30 km to 50 km**. Participants must strictly follow the rules and technical requirements. The most important rule is that the athlete must not allow any moment when **both feet are simultaneously off the ground**. If a phase occurs when neither foot is in contact with the ground, the athlete is considered to have transitioned from walking to running. Athletes who violate this rule may be disqualified by the judges.

Running is also a natural way of locomotion and is one of the most widespread forms of exercise. It is included in many sports such as football, basketball, tennis, and others. Many running forms are an organic part of athletics events. Compared to walking, running imposes substantially higher demands on the body's work capacity because almost all muscle groups become actively engaged; cardiovascular, respiratory, and other systems intensify their functioning; and metabolism increases significantly. By adjusting the distance and speed according to the participant's abilities, the training load can be varied, which influences the development of endurance, speed, and other qualities. Regular running also strengthens willpower, teaches a person to distribute effort effectively, helps develop the ability to overcome obstacles, and improves orientation in open spaces. Running is one of the main means of all-round physical development. The strong emphasis on running in the training of athletics specialists as well as athletes from other sports, and its major role as a means of active rest, health improvement, and maintaining work capacity, confirms its

broad value. Among all athletics events, running is the most widely practiced physical exercise. In athletics competitions, various running and relay events hold a leading position and are also highly attractive to spectators; therefore, running competitions are considered one of the best tools for mass sport organization.

In athletics, running includes flat (sprint/middle/long) running**,** hurdles**,** relay running**,** and running in natural conditions (cross-country). Flat running is performed over a specified distance or within a specified time, typically on a track in the counterclockwise direction. For 400 m and shorter distances**,** each runner is assigned an individual lane; longer distances are run on a shared track. The time required to cover a fixed distance is measured with a stopwatch. In time-limited events such as one-hour or two-hour runs, the result is defined by the distance covered within the set time, measured in meters.

There are two main types of hurdle running. The first is hurdle sprinting over 60–400 m**,** where athletes clear identical hurdles placed at equal intervals; each athlete runs in a separate lane. The second is 2000–3000 m steeplechase**,** in which athletes overcome fixed barriers on the track and also pass through a water pit located in one of the stadium sectors.

Relay running is a team event. The distance is divided into stages according to the number of runners in the team. The goal is to pass the relay baton from one runner to the next and bring it from start to finish as quickly as possible. Stages may be equal (short or middle distances) or mixed. Relay events are usually held on stadium tracks, and sometimes also on city streets in circular or star-shaped formats.

Jumping is a natural way of overcoming obstacles and is characterized by maximal neuromuscular effort within a short time. In athletics jumping training, athletes improve body control and the ability to apply force effectively; strength, speed, agility, and courage develop. Jumping is one of the best exercises for strengthening the leg and trunk muscles and developing explosive “springiness.” It is important not only for athletics jumpers but also for athletes in other sports, especially basketball, volleyball, and football.

Athletics jumps are commonly classified into two groups:

1. Vertical jumps (aiming to clear a height): high jump and pole vault.

2. Horizontal jumps **(**aiming to cover a distance): long jump and triple jump. Results are measured in meters and centimeters. Jumps may be performed from a standing position or with a run-up. *(Historical note: some older sources claimed that triple jump and pole vault were not held for women; however, in modern international athletics both the women’s triple jump and women’s pole vault are official events.)*

Throwing includes exercises in which special implements are thrown or put for distance; results are measured in meters and centimeters. Throwing is characterized by short-duration maximal neuromuscular effort. Not only the arm–shoulder girdle and trunk muscles, but also the leg muscles participate actively. To throw far, an athlete needs a high level of strength, speed, coordination, and the ability to “gather” force into one powerful action. Training in throwing develops these qualities and also supports harmonious development of the whole body.

According to technique, athletics throws can be grouped as follows:

1. Overhand, from behind the head**:** javelin (and in some training contexts, grenade-throwing exercises).

2. Rotational throws**:** discus and hammer.

3. Put/shot technique**:** shot put**.** Differences in techniques are linked to the implement's shape and weight. Lighter implements can often be thrown with a run-up and overhand action, while heavier implements typically require a rotational technique. The shot put, which has no handle, is performed as a "put" rather than a throw.

Combined events (multi-events) include various running, jumping, and throwing disciplines. They are named according to the number of events: triathlon, tetrathlon, pentathlon, heptathlon, octathlon, and decathlon. The major combined events are traditionally decathlon for men and heptathlon for women in modern international practice, while youth categories may include other combinations depending on regulations. Multi-events impose very high demands: athletes must be technically skilled and simultaneously fast like sprinters, strong like throwers, explosive and agile like jumpers, brave like hurdlers, and enduring like middle-distance runners. Completing the full program also requires a well-developed will and strong psychological qualities. Training in combined events has a comprehensive effect on the body and creates a strong foundation for specialization in any single athletics discipline. Multi-event results are determined by the total points earned for each event using official scoring tables.

Conclusion. The history of athletics exercises goes back to ancient times. Running, jumping, and throwing have long been used in labor and everyday life as natural and necessary human movements. However, many years passed before they became formalized as means of physical education and as organized sport disciplines. In early societies, athletics-type movements were closely connected with work activities. As humanity moved toward more structured social systems, physical education began to develop greater independence. Running, jumping, and throwing were highly developed in Ancient Greece and held an important place in military and physical training, as well as in tribal and pan-Hellenic religious festivals. The most famous of these celebrations were the **Olympic Games**.

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