



ATHLETICS. INTRODUCTION OF INNOVATIVE TECHNOLOGIES IN MIDDLE DISTANCE RUNNING (CROSS SPORTS)

Nasirov Polatbay

Assistant of the Department of Sports Sciences,
Nukus State Pedagogical Institute named after Azhiniyaz

Esemuratov Sultamurat

Senior Lecturer of the Department of Sports Sciences,
Nukus State Pedagogical Institute named after Azhiniyaz

Abstract

This paper examines the introduction of innovative technologies in athletics, with a special focus on middle-distance running, including cross-country. Modern technologies such as wearables, fitness trackers and data analysis software are significantly changing the way we approach training and competition. The use of GPS trackers allows athletes to optimize routes and track physical performance, which helps to increase the effectiveness of the training process. Virtual training and competitions open up new horizons for participants, allowing them to compete in conditions that were previously unavailable. In addition, health monitoring technologies play a key role in ensuring the safety of athletes. In conclusion, the importance of constantly updating the knowledge of coaches and athletes about modern technological solutions for achieving high results in athletics is emphasized.

Keywords: Athletics, middle-distance running, cross country, innovative technologies, fitness trackers, GPS trackers, virtual competitions.

Introduction

Athletics is one of the most popular and accessible sports, which includes running, jumping, throwing and multi-sport events. The development of athletics requires a comprehensive approach that includes a methodological framework that promotes effective teaching and training of athletes. Middle distance running (cross-country)



has its own special significance. This article discusses key methodological aspects that influence the development of athletics.

Athletics has a rich history dating back to ancient times. Over time, not only the rules and formats of competitions have changed, but also the approaches to training and preparation of athletes. Studying the historical context allows us to identify successful practices and adapt them to modern conditions.

The Greek word “athletics” means struggle, exercise. In ancient Greece, athletes were those who competed in strength and agility. Nowadays, athletes are physically developed, strong people.

Modern athletics is a sport that includes such exercises as walking, running, jumping, throwing, and multiathletic events composed of the listed exercises. Numerous athletics exercises are used to hold sports competitions and organize the training of athletes. Athletics is an important means of physical education of young people.

Cross-country running (cross-country) is one of the applied types of athletics. Running in natural conditions on the terrain strengthens the body, has a positive effect on the nervous system, is an important means of training athletes of many sports; they apply cross-country running in their training.

Cross is not only an auxiliary means of training athletes, but also an independent type of sports running. A distinctive feature of this type of running is a significant duration and high intensity of muscle work. The technique of cross-country running is fundamentally the same as middle-distance running. But the cross-country runner has, in addition, to take into account the peculiarities of the terrain and skillfully adapt to them. All this causes a number of changes in running technique. When climbing uphill, for example, increases the inclination of the torso forward, more frequent movements, shorter step, more active hands. When running at a slight incline increases the length of steps, the foot is placed on the whole foot or on the heel with a subsequent roll to the toe, reduces the inclination of the torso forward. On steep slopes, the stride length is reduced and the torso is even tilted slightly backwards.

Cross-country running is carried out on a common track from a high start. Cross-country distance is laid on the fields, forests and ravines. On them may be natural and artificial obstacles: ditches, ditches or hedges no higher than 1 m. When running in the woods must look carefully underfoot, and hands to protect the face,



neck, shoulders and torso from the impact of branches. When running on clay, wet and slippery ground is better to run small frequent steps, a little more than usual spreading to the sides of the feet.

In running at medium distances (500-2000 m) athletes usually use a high start. At the call of the referee at the start, runners go to the assembly line usually 3 meters from the start line. At the command “Start!” they approach the start line and take the most favorable position to start running. The runner places the strongest leg at the start line, putting the other leg back. The bent arm, which is opposite to the forward leg, is brought forward. Some runners rest this hand on the ground (up to the starting line). In middle distance running, the command “Attention!” is not given. At the command “March!” or a shot, runners will rush forward.

The start of the run is the same as in sprinting, but with a lower intensity of effort. The torso is straightened more quickly and the runner moves to free running on the course.

While running, the torso is slightly tilted forward, the head is kept straight, the movements of the shoulder girdle and arms are easy and relaxed, and the fingers are freely folded. The stride length and running speed decreases as the distance increases. In middle distance runners, stride length exceeds body length by 15-20 cm, and in long distance runners by 10-15 cm. Foot placement on the track in middle-distance running is done elastically from the front of the foot and then lowering to the entire foot.

The rhythm of breathing is essential in middle and long distance running. At low running speed, one breathing movement (inhalation and exhalation) is performed for 6 steps. With increasing speed, the frequency of breathing increases; one breathing movement is performed for 4, and sometimes for 2 steps.

Cross-country running, or cross-country, is a unique discipline of athletics that requires athletes to be highly physically fit, endurance and the ability to adapt to different conditions.

Modern technologies play an important role in improving the training process, increasing the efficiency of competitions and ensuring the safety of athletes.

Implementation of modern technologies in cross-country running (cross-country) can be suggested as follows:



- The use of wearable devices:

Fitness trackers and smart watches: the devices allow athletes to track their physical performance such as heart rate, speed, distance and calories. The data collected during training helps to analyze progress and adjust training plans;

GPS trackers: allow you to track your running route, which is especially important for cross-country running. Athletes can analyze route difficulty, elevation changes and choose the best paths for training;

- data analysis software:

Training apps: there are various smartphone apps that help plan workouts, record results, and analyze data. Some of them offer recommendations on how to improve running technique and fitness.

Performance analysis platforms: The use of specialized software allows coaches and athletes to analyze training data, identify weaknesses and optimize training.

- virtual training and competitions.

With the advancement of technology, virtual training and competitions have become popular. Athletes can participate in online competitions, which allows for a wider geographical range of participation and a competitive spirit even in restrictive environments (e.g. during a pandemic).

Virtual Reality (VR) and Augmented Reality (AR)

Training in VR: Virtual reality technologies can be used to create simulations of different courses and conditions. This allows athletes to adapt to new routes and improve their skills in a safe environment.

AR for technique analysis: augmented reality can be used to visualize running technique, providing athletes with real-time feedback on their movements.

Safety and health monitoring

Health monitoring: modern technology allows athletes' health to be monitored during training. For example, using sensors to measure blood oxygen levels or temperature can help prevent overheating or other dangerous conditions.

GPS tracking: the introduction of GPS trackers allows coaches and parents to track the location of athletes during outdoor training, increasing safety.



Education and training of trainers

Modern technology also plays an important role in coach education. Online courses, webinars, and self-education resources help coaches stay up-to-date on the latest trends and techniques for training athletes.

In conclusion, the introduction of modern technology into cross-country running opens up new opportunities to improve the training process, safety and competition efficiency. The use of wearable devices, data analysis software, virtual training and health monitoring technologies contribute to a better understanding of the individual needs of athletes and optimize their training. It is important to continue to explore and implement new technological solutions to ensure the successful development of the sport.

References

1. Pelmenev V.K., Koneeva E.V. History of physical culture Kaliningrad. 2000.
2. Goloshchapov B.R. History of physical culture and sport. M.: 2001.
3. Ruziev S.S., Shaternikov E.K. et al. Uzbekistan Olympic. T.: 2001.
4. Isaev A.A. If you want to be healthy: Collection. - M.: Fizkultura i Sport, 1988.
5. Milner E.G. I choose running! - M.: Fizkultura i Sport, 1984.
6. Ozolin N.G., Markov D.P. Athletics. Textbook. - M.: Physical Culture and Sport, 1972.
7. Shedchenko A.K. Running for everyone: Collection. - Moscow: Physical Culture and Sport, 1984.