The fourth stage takes place in late April. All teams come to the city of Minsk, where they take part in the athletics competition. All finalists of the project compete in a 30m hurdles running, throwing a stuffed ball from the knees, long jumping from a place. The teams also compete in the 8x50m relay race.

As a result of the competition, the winners and prize-winners of each age category are awarded in individual events and by the sum of the all-around, as well as the winners in the team competition are determined.

The format of the final stage takes place in a bright, colorful atmosphere, with the involvement of a large amount of animation, fairy-tale characters and positive emotions that allow you to show the competition participants that athletics is fun and dynamic, no less attractive than other sports.

Throughout the existence of the project "300 talents for the queen", many of its participants have come to the athletics schools, a number of which, at the moment, have become winners and prize-winners of not only republican, but also international athletics competitions.

Thus, the development and implementation of new sports educational projects such as "300 talents for the queen" helps to increase children`s motivation for athletics, thereby being one of the stages of the initial selection of children to further exercises, which is undoubtedly an important indicator in the current time.

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EFFECT OF PACE AND POWER ON BOAT SPEED IN KAYAKING

The effect of the kayaking components on each other can lead either to the improvement in the sporting result, or to its deterioration. The definitions of this effect will help to reduce the negative interaction of stroke parameters on each other and to strengthen the positive actions to achieve the goal. Moreover, this will enable to select the most appropriate means and methods of training to improve the kayaking performance.

Price of the victory in kayaking is determined sometimes by tenths, and other times even by hundredths of a second. The search for additional reserves, which contribute to increasing the level of athlete's training and achieving the maximum competition form, is the most important task in

organizing the training process. One of the components of solving this task is biomechanical parameters of kayaking [1; 2]. Over recent years, the most relevant is the alignment of model characteristics of the driving influences of movement [3; 4; 5]. Previous researches have allowed for revealing the dependence of rational techniques of movements on the functional state of skeletal muscles [6; 7]. Over recent years in various sports a significant number of experimental researches have been devoted to the development and identification of the effectiveness of applying the model characteristics of the technique of movements [8; 9; 10]. At the same time, the proposed model characteristics are often determined by a level of fitness and take little account of the biomechanical component of the result.

The training process quality depends to a large extent on the range of the information obtained of a different nature. The data of pedagogical parameters of the load, medical and biological component, kinematic and biodynamic features of movement have impact on a level of fitness and the sporting result as the ultimate goal of this process. The most interesting are the performance indicators of athletes (speed, pace, power, etc.) when passing both the entire distance and its sectors. Change in these indicators throughout a distance is a consequence of the load the body receives.

It was assumed that the determination of the kayaking model characteristics would help optimizing the means and methods of training rational techniques. Identification of a nature of the change in techniques of movement against the fatigue will promote selecting the means for correcting the training process.

The research areas were biomechanical features of the kayaking stroke movement.

As a result of testing paddlers, the following parameters were determined:

Speed – speed of covering a distance (m/s).

Power – power of each stroke developed by a paddler (Watt).

Pace – number of strokes per one minute (str./min).

The explorations were conducted at the Physical Culture and Sport Laboratory of Francisk Skorina Gomel State University. The explorations were carried out within the framework of the State Scientific Research Program of the Republic of Belarus “Convergence – 2020”.

The speed of a kayak throughout a distance is the key parameter. One can evaluate activity of a paddler and a level of his/her fitness by the speed of a boat running and its variation in each cycle of stroke movements. When a high average speed is reached and in the course of a distance it hardly changes, it is considered the best running of a boat. In this case, the average speed approaches the maximum one. Figure 1 shows that the maximum speed is achieved in the first half of a distance, especially at the first two hundred meters. In the second half of the distance, due to the arrived fatigue, there is a significant decrease in speed, which at a sector of 600 meters is 96.7% of the average speed. And only at the very end of the distance, thanks to the final acceleration, the speed of the kayak is approaching the average speed throughout the distance.

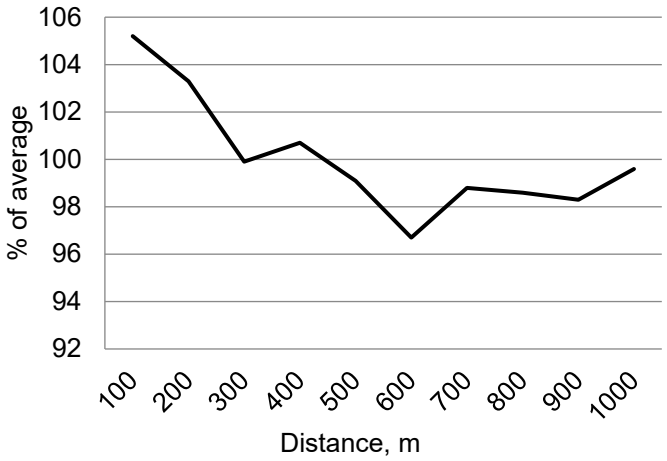

Figure 1 – Change of speed at a distance of 1,000 m

Considerable attention in cyclic kind of sports is given to the pace of activity movements. The kayaking pace can be an indicator of both technical competence and functional fitness of athletes.

The earlier researches resulted in determination of the relation of movement pace along with qualification of athletes and a level of their technical skills with the ability to alternate tension and relaxation of muscles [10]. Also, the inverse dependence of the pace on the kayaking technique indicators was revealed.

The pace magnitude and dynamics throughout a distance is determined by individual qualities of paddlers and their tactics. In general, paddlers who take high places in various competitions, pass the second half of a race at a slower pace than the first one. Figure 2 shows that the first half of the distance is covered with a significant excess of the average pace, while in the second half at a sector of 600 meters there is a sharp drop to 94.7%. Then there is a gradual increase to an average pace at 800 meters and again a drop to 96.6% at a sector of 900 meters. As a result of the final acceleration, the pace again rises. But as a result of this increase (the pace in the last 100 meters exceeds the average by 1.3%) the average speed of the boat is not achieved. In our opinion, this is due to the fact that at the end of the distance there is fatigue and at the same time the pace increases. This leads to violation of the most optimal structure of stroke movements and deterioration of other parameters of the stroke.

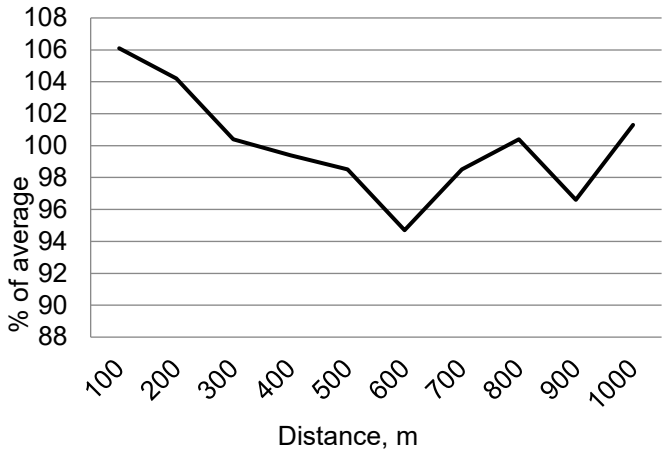

Figure 2 – Change of pace at a distance of 1,000 m

Figure 3 shows the simultaneous change of pace and speed at a distance of 1,000 meters. The most illustrative is sector of 700-800 meters, where the speed decreased from 98.8% to 98.6%, while the pace increased from 98.5% to 100.4% of the average one. On that basis, it can be concluded that with increasing the pace at this sector other parameters suffered significantly, that led to the decrease in speed.

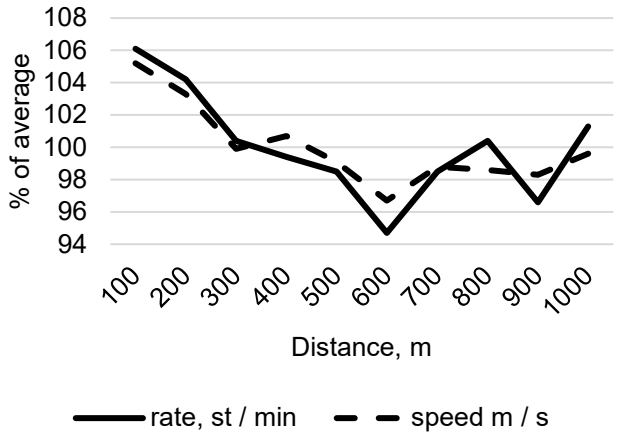

Figure 3 – Change of pace and speed at a distance of 1,000 m

The power developed by paddlers throughout a distance is also one of the basic stroke parameters. This parameter characterizes the strength endurance which is one of the leading qualities of a paddler. Figure 4 shows the change in power at a distance of 1,000 m. Its maximum value is observed at the first 100 meters of the distance and exceeds the average one by 12.7% (this is the biggest change from all parameters and is explained by the high starting power). A gradual decrease of power occurs up to a sector of 700 meters. From 800 meters there is an increase to 100.8%, and then the maximum drop to 93.2% at a sector of 900 meters. It can be assumed that the sharp drop in power was due to the final acceleration which is performed from 700 meters to the finish line, as a result of which there is often not enough strength and at a sector of 900 meters there is a drop in power, pace and speed.

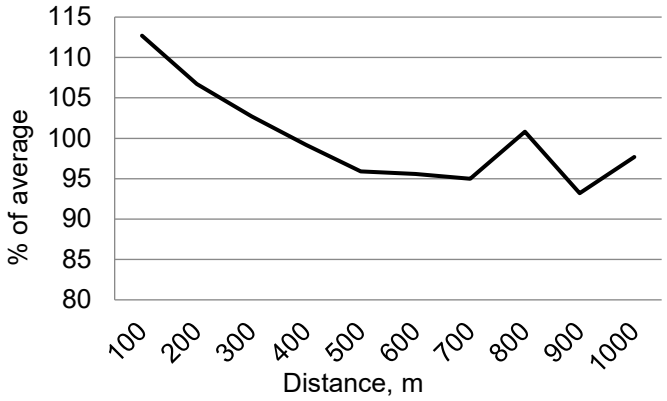

Figure 4 – Change of power (Watt) at a distance of 1,000 m

Figure 5 illustrates the change in power and speed at a distance of 1,000 meters. As it was already said, at a sector of 700-900 meters there are sharp fluctuations in the power 95% – 100.8% – 93.2%, while the speed here varies slightly with gradual drop 98.8% – 98.6% – 98, 3%.

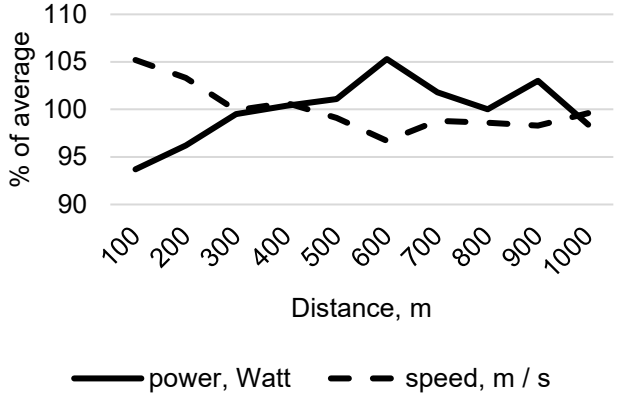

Figure 5 – Change of power and speed at a distance of 1,000 m

Figure 6 shows the change in pace, speed and power at a sector of 700-800 meters. As can be seen from the figure, the increase in pace and power at a sector of 700-800 meters not only does not lead to the increase in speed, but it even falls, albeit insignificantly. Therefore, one can say with confidence that there are other parameters that determine the speed at this sector.

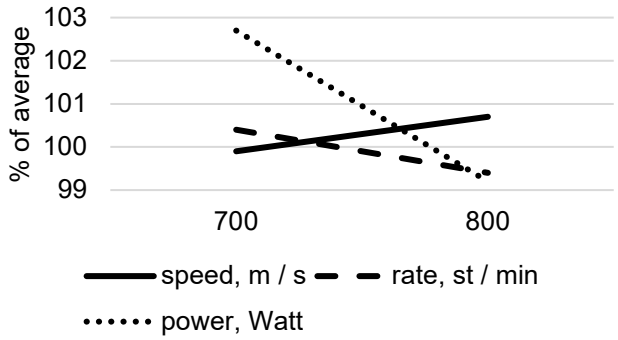

Figure 6 – Change of pace, speed and power at a sector of 700-800 meters at a distance of 1,000 m

As a result of the study, an analysis of the main parameters of the stroke was made and positive and negative relationships were identified for each parameter, which makes it possible to find shortcomings in the physical or technical fitness of the athlete and make timely corrections to the training program.

It has also been found that an increase in pace and power does not always lead to a commensurate increase in boat speed. For a deeper analysis of the reasons that cause a decrease in the efficiency of the rowing movement, it is necessary to study the nature of the interaction of body links in biokinematic pairs and the degree of force transfer developed by the sequence of inclusion of muscle groups.

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