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IMPROVING RESULTS BY ANALYZING TACTICS IN THE 4 KM INDIVIDUAL PURSUIT

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YAKKALIK 4KM TA’QIB QILISHDA TAKTIKANI TAHLIL QILISH YORDAMIDA NATIJALARNI YAXSHILASH

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УЛУЧШЕНИЕ РЕЗУЛЬТАТОВ С ПОМОЩЬЮ АНАЛИЗА ТАКТИКИ В ИНДИВИДУАЛЬНОЙ ГОНКЕ ПРЕСЛЕДОВАНИЯ НА 4 КМ Хамрайув

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ABSTRACT

The individual pursuit race exists in the track disciplines of cycling, and in this research work, the main focus is on improving results by moving along the trajectories of turns and turns (zones) and proves its effectiveness.

Keywords:

Strength, endurance, trajectory, bike, rider, judge, race, participation, result, champion, time, improvement.

ANNOTATSIYA

Yakkalik taqib poygasi velosiped sportining trek yo‘nalishlarida mavjud bo‘lib, ushbu tadqiqot ishimizda burchak burilish traektoriyasi va viraj (zona)laridagi xarakatlar tufayli natijaarni yaxshilash va bu ish o‘z samaradorligini isbotlashga qaratilgan.

Kalit so‘zlar: Kuch, chidamlilik, traektoriya, velosiped, poygachi, hakam, poyga, ishtirok etish, natija, chempion, vaqt, takomillashtirish.

АННОТАЦИЯ

Индивидуальная гонка преследования существует в трековых дисциплинах велоспорта, и в этой исследовательской работе основное внимание уделяется улучшению результатов за счет движения по траекториям поворотов и виражей (зон) и доказывает своей эффективностью.

Ключевые слова:

Сила, выносливость, траектория движения, велосипед, гонщик, судья, гонка, участие, результат, чемпион, время, улучшение.

The individual pursuit is a type of track cycling race included in the Olympic Games program (for men - since 1964, for women - since 1992).

The race is held at a distance of:

4 km - among men;

3 km - among women, as well as junior men;

2 km - among junior women.

Two cyclists start from opposite sides of the track at the signal of the judge. The winner is the rider who caught up with his opponent or showed the best time of the distance. If the drivers show the same time, then the victory is awarded to the one who showed the best time on the last lap.

The competitions are held in two stages:

Qualifying races, based on the results of which 4 riders with the best time are selected. When conducting them, only the time of the distance is taken into account: if a rider catches up with his opponent during the race, he must finish the distance in order to register his time;

Final races: the two riders who showed the best time compete for first and second place, the other two from among the finalists — third and fourth.

When qualifying for the Olympic Games, competitions are held in 3 rounds:

Qualifying races, based on the results of which 8 riders with the best time are selected;

Semifinal races in the following order: 4-5, 3-6, 2-7, 1-8;

Final races.

If it is impossible for one of the drivers to continue the race, it stops. After that, the rider is allowed to start again in a pair with another of the retired cyclists. If there are no such, then the rider starts alone. A cyclist who has stopped the race more than twice is not allowed to start again at this competition.

The tactics of passing the distance in the 4 km individual pursuit race consists in the ability of the athlete to rationally distribute efforts at a distance, depending on the type of arrival, when it is necessary either to show a high result or to achieve victory over an opponent. At the same time, athletes should take into account external and internal factors affecting the sports result: the quality of equipment, inventory and track canvas, weather conditions (if the track is open), etc. Of the internal factors, the most important are the level of special preparedness of athletes at this stage and the individual characteristics of the energy supply mechanisms that affect the tactical options for passing the distance.

As a result of the typology of competitive speed layouts in the 4 km individual pursuit, several different variants of the dynamics of distance speed were proposed. So, V. A. Bakhvalov (1993) identified five different layout options, and A. A. Krasnikov (1995) recommended considering only three options. Yu. K. Dravnek (1992), after analyzing more than 1000 races at this distance, identified four options. Almost all authors studying the typology of layouts, as a rule, distinguish four main types of distribution of efforts at a distance:

1. Relatively uniform distance passing.

2. Overcoming the first half of the distance faster than the second.

3. Overcoming the second part of the distance faster than the first.

4. Overcoming the distance with sharply variable speed.

Most authors believe that the most rational way to distribute efforts in an individual 4 km pursuit is to maintain speed relatively evenly over the entire distance. The criterion of optimal tactics in this case, as a rule, is chosen by the sports result itself, and less often the average linear deviation of speed in certain sections of the distance from the average distance speed in the race

Some authors, for example Yu. K. Dravnek (1977-1981) and M. A. Andrunin consider the indicator of the energy cost of the work performed to be the main criterion for the optimality of tactics. They determined that the tactical options for the distribution of forces are individually optimal and depend on the energy potential of the athlete.

So, to date, cycling experts do not have a single opinion on the choice of optimal tactics in the 4 km individual pursuit. In this regard, the purpose of our study was to study the patterns of tactics in the conditions of competitive activity of chasing racers.

To do this, the following tasks were set in the work:

1. To determine the tactical options for passing the distance of the individual pursuit race for 4 km by highly qualified athletes.

2. To identify the features of tactics of passing a distance of 4 km, depending on the type of arrival.

METHODOLOGY AND ORGANIZATION OF THE STUDY

All the work was carried out at the Olympic cycling track in Krylatskoye, which allows for a better study of the tactical activities of cyclists, since the options for distributing efforts in the race are not affected by weather conditions and other factors that take place on open tracks.

More than 150 schedules of the 4 km individual pursuit distance by the world's strongest racers for the period from 1992 to 1996 were analyzed. At the first stage of the work, 80 schedules of preliminary races were considered, in which athletes are selected among 16 or 8 participants who continue to compete in competitions. According to a number of authors (V. A. Bakhvalov, 1960; A. A. Krasnikov, 1968, Yu. G. Krylatykh, 1980, etc.), it is in time-laps that cyclists strive to complete the distance at an optimal speed, and the option of distributing efforts at a distance reflects the level of their special preparedness.

At the second stage of the work, the dynamics of the speed of overcoming the distance of 4 km in the final races was studied.

RESEARCH RESULTS

The analysis of the schedules of the racers passing the distance in the individual pursuit for 4 km showed that at different sections of the distance changes:

- starting speed set,
- speed drop to a level below the average distance,
- maintaining speed,
- increase the speed at the finish line.

However, the information obtained during registration and analysis of the dynamics of competitive speed, by itself does not allow us to solve the question of the reasons for the change in speed at a distance. In other words, it is not clear whether an increase in speed on the previous section of the race leads to a forced decrease in speed on the subsequent one, a correlation analysis of the relationships between the speed values on individual kilometers of the race distance gives a clearer picture. Note that correlation analysis can be used only if the measurement results obey the law of normal distribution.

Therefore, a graph of the empirical law of the distribution of the average speed in the studied races was constructed. As a result, it was found that the average values of the speed of cyclists obey the normal distribution law. Therefore, the Brave-Pearson formula can be used to calculate the correlation coefficients.

Statistical research methods allowed not only to identify the influence of the speed of passing one section of the distance on another, but also to determine the significance of the time of passing each section of the distance on the final result. To do this, we determined the correlation coefficient between the average speed shown in the race and the speed recorded in certain sections of the distance (Fig. 2). As can be seen, the speed in the first three laps has a low correlation with the result in the race (rtk =0.212—0.433). The average speed shown from the fourth to the eleventh lap has the greatest correlation with the result (rtk= 0.613—0.844). The speed on the last two laps has a correlation with the result at the level of rtk = 0.251—0.655. The data obtained indicate that the result in the 4 km individual pursuit is mainly influenced by the ability of riders to maintain high speed in the middle of the distance. The start of the race and the finish acceleration are not decisive in the overall result, since they are performed by all riders at different speeds.

From these positions, we approached the study of tactics in the individual 4 km pursuit of highly qualified athletes. Depending on the dynamics of the starting acceleration, the dynamics of speed in the middle and end of the distance, all the studied distance schedules were divided into 9 groups representing various options for the distribution of effort.

Since previously none of the classifications of competitive speed dynamics in a 4 km race had such a number of studied tactical layouts, we have attempted to describe and characterize each of them.

1. The dynamics of the distance velocity is variable. After performing the starting acceleration and reducing the speed to the level of the average distance, there is an increase in speed in the middle of the distance and at the finish with a maximum increase in speed at the start of +6.019% and a decrease to -2.614%.

2. The speed at the beginning of the distance exceeds the average distance by +9.495%, then decreases (-1.726%) and remains almost unchanged until the finish.

3. The increase in speed is associated with the performance of a strong starting acceleration exceeding the average distance speed by 6.688%. In the future, there is a decrease in speed first to the level of the average distance, and then below the average distance with a maximum decrease of -3.881% and some increase at the final acceleration.

4. A variation of the third option with an even stronger increase in speed at the beginning of the distance (+7.624%) and a characteristic retention of speed after each decrease. The maximum speed reduction is -3.972% of the average distance.

5. The relatively uniform passage of the distance is noted. The maximum increase in the average distance speed at the start was +3,278%, and the maximum decrease at the end of the distance was -2,355%.

6. The average distance speed increases at the beginning and at the end of the race and is kept almost at the same level below the average distance, in the middle of the race. The maximum increase in the average distance speed at the start is +5.736%.

7. A variation of the fifth option with a significant increase in the average distance speed at the start (+7.799%) and an earlier decrease in speed to the finish. The maximum reduction in the average distance speed is -4.939%.

8. Gradual reduction of speed to the finish line after the start acceleration. The maximum increase in the average distance speed is +10.125%, and the minimum decrease is -6.349%.

9. After the starting acceleration, the speed in the race gradually decreases over almost the entire distance, with the exception of a short finish segment, where the speed increases. The maximum increase in speed is +8.988%, the maximum decrease is -6.047% of the average distance.

The calculated correlation coefficient (rtk) between the average distance speed in the race (V) and the value of the average linear deviation of the speed in individual sections of the distance

Is equal to -0.790%, with P<0.1. This indicates that highly qualified cyclists strive to maintain speed more evenly over the race distance. The phenomenon is not accidental, but natural and depends on the individual capabilities of the athlete's body. The obtained data on the nature of the speed dynamics in the race are consistent with the laboratory studies conducted earlier when modeling competitive activity on a bicycle ergometer.

Further investigation of the tactics of passing the distance in the 4 km individual pursuit revealed that the speed dynamics are not always influenced by the actions of the opponent in the race. So, in different types of races, it was noted that the strongest athletes in the world tend to stick to one tactical option, for example, an athlete from the GDR X team. Wolf, who took 4th place at the XXII Olympic Games, overcame the distance in the preliminary, quarterfinal and semifinal races using the VIII tactical variant according to the classification we proposed. At the same time, in the preliminary race, when the athletes started one by one, X. Wolf set a new world record (4.39,96) for indoor cycling tracks. In the final race X. Wolf used the VI tactical option, starting the race slower than usual by -2.25%. Relatively evenly passed the 2nd and 3rd km of the distance and increased the speed at the finish by + 1.66% relative to the average distance. In this race, the rider from the GDR showed one of his best results (4.37,38), but this was not enough to win over X. Orsted, who took 3rd place - 4.36,54.

The 1996 Olympic champion R. Dill-Bundy used the VI tactical variant in his races. Considering his speed capabilities, the Swiss cyclist started the race at a high speed, exceeding the average distance by more than 2-3%. Then, after dropping the speed by 1-2% below the average distance, he held it until the ninth lap. In the final part of the race, as a rule, he significantly increased his speed (finishing acceleration), which allowed him to exceed the average distance speed by 8% in the final race. It should be noted that with this variant of the distribution of forces in the race, R. Dill-Bundy showed absolutely the best time of passing the 4-kilometer distance (4.32,29).

CONCLUSIONS

Thus, a high athletic result in the individual 4 km pursuit can be shown in almost any variant of the distribution of efforts in the race. This was once again confirmed by our experimental study in laboratory conditions, which showed the expediency of using the concept of an individually optimal variant of the distribution of forces in the race, which allows us to completely exhaust the energy potential, depending on the special preparedness of athletes. Therefore, we believe that there is an individually optimal tactical option for each athlete.

It should be noted that our observation of the use of options for the distribution of efforts in the race by the strongest cyclists revealed the preservation of individual characteristics of tactics indicators. So, for example, the repeated champion of the ZMS A. Krasnov, the nature of the distribution of efforts in the races during 2001-2003 was identical. The athlete used the III tactical option. After exceeding the average distance speed by 6 — 8% during the starting acceleration, the speed was reduced to the 5th lap. Then the athlete kept the speed close to the average distance. A. Krasnov managed to do it best at the winter championship (27.01,2003), where he showed a high sports result — 4.36,10.

Thus, we came to the conclusion that for highly qualified cyclists, the nature of the distribution of efforts in the race (speed dynamics) is individually optimal and persists not only depending on the type of race, but also practically does not change for a long time of participation in competitions.

REFERENCES:

1. Fred Milson. Complete Bike Maintenance New and Expanded Edition: For Road, Mountain, and Commuter Bicycles, VP Books; New Edition, New and Expanded Edition edition, USA. (March 28, 2017).
2. Joe Friel. The cyclists training bible, Colorado, Velo Press, 2018
3. Chernikova Y.N. Velosipednoy sport 2018
4. 4.Baxvalov V.A., Romanin A.N. Psixologicheskaya podgotovka velogonshika. M.: FiS
5. 5.Jo Fril, 2011. The cyclist's training bible.