Scientific substantiation of the training system for cyclists specializing in the 25 km team race

Tukhfatullina Irina Nikolaevna[1]

[1]Uzbekistan state university of physical education and sport, Chirchik, Uzbekistan

Abstract

Purpose: to develop an effective, scientifically substantiated training system with a significant amount of competitive load for cyclists specializing in the 25 km team road race.

Methods: analysis of domestic and foreign literature and data of sports practice, pedagogical observation, timing and testing of training and competitive loads according to pulsometry data, methods of testing and control exercises, competitions, pedagogical experiment, methods of mathematical statistics.

Results: Special attention should be paid to the leader in the team race, as they experience the greatest physical and psychological load, and they have the greatest changes in functional state after the competition.

Definitely, the proposed assessment of the functional state of cyclists in general and in the team race in particular makes it possible to more effectively manage the training process and on this basis to adjust the volume of training and competition loads.

When completing the team for important competitions, includes athletes who have achieved results in group races, so it should be concluded that successful performance in two types of competitions, even when one of them requires such a heavy load, such as a team race for 25 km (for example, a race with a separate start at 30 km), will somehow affect the performance of athletes in the second type of competition.

Conlcusion: One of the factors that realize the general and special endurance of cyclists is the gradual application of methods and means of training (at the beginning of training - methods that develop aerobic capabilities, with gradual inclusion in weekly training cycles of methods that develop anaerobic capabilities of cyclists). An important prerequisite for the implementation of the principle of increasing loads is a stepwise increase in weekly loads with the use of unloading cycles. Planning of training loads should take into account transfer ratios as a factor determining the physical load.

Keywords: profile training, cycling, training structure, team racing.

Introduction

In the training of high-skilled cyclists of great importance is the system of training athletes, insufficiently studied the problem of distribution of training and competition loads in the annual cycle of training. Presents the distribution of the volume of exercises of different power in combination with competitions during the transition, preparatory and competitive periods of training cyclists, the volume of load and its parameters in the team race for 25 km on the highway.

The creation of a scientifically based system of training high-skilled cyclists suggests that further intensification of the training process by improving the methodology, optimization of training means, which will contribute to the improvement of sports results of Uzbek high-skilled cyclists specializing in team road race for 25 km.

However, so far the essence of this process has not been fully studied. In methodological recommendations and training manuals (T.K.Narbaeva, E.N.Chernikova, I.I.Karimov, 2016; F.A.Kerimov, 2004), the essence of the training process is presented in accordance with general theoretical guidelines, but at the same time coaches-practitioners (UCI Program - 2022/D. Lappartien, 2019) prepared athletes according to other distinctive methods, using different structure of the annual cycle, different ratios of training loads and amplitude of fluctuations in their volume. The lack of scientifically substantiated optimal distribution of training and competition loads at the stages of the annual cycle does not contribute to the improvement of the process of training athletes.

Scientific novelty of the research consists in the following:

- the system of training with a significant volume of competitive load of road cyclists specializing in the team race at 100 km is developed;
- criteria and basic parameters of special training and competitive loads of cyclists are established;
- the periodic of annual training process of high-skilled cyclists is developed;
- the most effective combinations of volumes of different intensities are revealed.

Results and discussion

Practical results of the study is to develop an effective system of training process of high-skill cyclists. The developed training system was used in the preparation of Uzbekistan national team on 25 km road race for the Champi-

onships of Uzbekistan 2021/2022, Asian Championships 2022.

The results of the work are used in the professional development of leading national coaches in cycling, as well as in teaching the course of specialization in cycling "Theory and methodology of cycling", "Improving sports and pedagogical skills in cycling".

Materials of the dissertation were used to develop perseptic development plans for cycling in Uzbekistan, target complex programs for training the national team in cycling on the highway.

Testing was conducted in the conditions of training camps, training process and competitions.

Optimization of management of complex systems, which includes sports training, involves the implementation of the feedback principle based on the assessment of immediate, delayed and cumulative effects. Complex assessment can be obtained with a large amount of information affecting individual characteristics and various aspects of athletes' fitness [6; 74 p.]. The necessary amount of information about the functional state of the athlete's organism, mechanisms of its adaptation to various training effects can provide the use of mathematical analysis of HR. In addition to HR data, the sensory systems of cyclists, and physical data (physical qualities) were evaluated.

The main pedagogical experiment was carried out since 2019, the developed variant of training cyclists-road cyclists is used in preparation for the Championship of Uzbekistan, Asian Championship, and as a consequence of obtaining a license and successful participation in the Olympic Games 2024 Paris (France).

Stage 2: 2020-2021 and was the main method of research and was conducted directly to verify the methodology of sports training of their training loads. In order to verify the study, a sequential experiment was conducted. Cyclists (n=30) participated in the experimental part of the study.

Stage 3: 2022-2023. Experimental substantiation of the system of profile training of road cyclists specializing in team racing was carried out. Planning and results of training

Table 1. Functional state of road cyclists preparing for the 100 km team race

m	Blood pressure, mm.Hg.		Physical performance	
	C	D	$PWC_{170,\ kGm/min}$	$PWC_{170,\ kg}$
Mean square error	115,00	68, 40	1810,0	24,90
	0,81	0,61	36,1	0,41

Note: *S - systolic, D - diastolic*

To assess the special physical fitness of road cyclists we used control and competitive exercises:

control exercises:

competitive exercises:

individual race with separate start for 25 km (IR);

individual race with common start 100-200 km (IO);

team race 25 km;

team race 50-100 km (CG);

group race 50-130 km (PG);

track races.

According to the data of pedagogical tests, the special physical fitness of athletes in different periods of training was evaluated, after which the subsequent training load was planned on the basis of the obtained data.

Table 2. Performance measures of PWC170 cyclists (n=22) during a team race

Indicators	$PWC_{170,\ kGm/min}$	$PWC_{170,\ kg}$
Before the race	*1870*	*25,1*
m	*87,3*	*0,37*
After the race	*1710*	*23,7*
m	*77,0*	*0,48*
t (reliability of differences)	*>0,05*	*<0,05*

Table 2. **Time of distance sections in the team race**

1 km	5 km	10 km	15 km	20 km	25 km	50 km	100 km	Average speed, km/h
2.20	11.40	25.20	35.00	46.40	58.28	1:56.40	3:53.20	
2.15	11.15	22.30	33.45	45.00	35.15	1:52.30	3:45.00	
2.10	10.50	21.40	32.30	43.20	54.10	1:48.20	3:36.40	28
2.05	10.25	20.50	31.15	41.40	52.50	1:44.10	3:28.20	29
2.00	10.00	20.00	30.00	40.00	50.00	1:46.00	3:20.00	30
1.55	9.35	19.10	28.45	38.20	47.55	1:35.50	3:11.40	31
1.50	9.10	18.20	27.30	36.40	45.50	1:31.40	3:03.23	33
1.48	8.00	18.00	27.00	36.00	45.00	1:30.00	3:00	33,5
1.46	8.50	17.40	26.30	35.20	44.10	1:28.20	2:56.40	34
1.44	8.40	17.20	26.00	34.40	43.20	1:26.40	2:53.20	35
1.42	8.30	17.00	25.30	34.00	42.30	1:25.00	2:50.00	36,5
1.40	8.20	16.40	25.00	33.20	41.40	1:23.20	2:46.40	36
1.38	8.10	16.20	24.30	32.40	40.50	1:21.40	2:43.20	37
1.36	8.00	16.00	24.00	32.00	40.00	1:20.00	2:40.00	37,5
1.34	7.50	15.40	23.30	31.20	39.10	1:18.20	2:36.40	38
1.32	7.40	15.20	23.00	30.40	38.20	1:16.40	2:33.20	39
1.30	7.30	15.00	22.30	30.00	37.30	1:15.00	2:30.00	40
1.28	7.20	14.40	22.00	29.20	36.40	1:13.20	2:26.40	41
1.26	7.10	14.20	21.30	28.40	35.50	1:11.40	2:23.20	42
1.24	7.00	14.00	21.00	28.00	30.00	1:10.00	2:20.00	43
1.22	6.50	13.40	20.30	27.20	34.10	1:08.20	2:16.40	44
1.20	6.40	13.20	20.00	26.40	33.20	1:06.40	2:13.20	46,9
1.18	6.30	13.00	19.30	26.00	32.30	1:05.00	2:10	47,6
1.16	6.20	12.40	19.00	25.20	31.40	1:03.20	2:06.40	48,4
1.14	6.10	12.20	18.30	24.40	30.50	1:01.40	2:03.20	49,2
1.12	6.00	12.00	18.00	24.06	30.00	1:00.0	2:00.0	50

work in the preparation of the team for the team race at 25 km.

Complex examination was subjected to 30 athletes during 2020-2022, athletes of the highest sportsmanship at the age of 18-26 years (1 athlete 40 years), training 10-15 years, examination was carried out therapeutic, Polar “M 460”, WattBaytt, according to the criterion of work capacity PWC 170.

Athletes were examined at different stages of training, as well as during competitions, which gave an objective assessment of the dynamics of the functional state of cyclists in different conditions and to develop criteria and evaluation of functional capabilities.

So the result of the study showed that during the competition significantly reduced functional reserves with increased function of the cardiovascular system, almost all riders by the end of the cycling team race at 100 km revealed signs of cardiac overstrain.

As the result of the study showed, in the main period of training for cyclists of high qualification there is a high economy of cardiovascular system function, presented in Table 1.

Unambiguously, PWC170 correlates reliably with athletic performance, our observations also show that the resilience cyclists in the

team race showed with high or above average values of physical performance.

The performance in the team race is summarized in Table 2.

Conclusion

As a result of the experiment it was established:

1. The alternation of competitive and supportive weekly cycles improved the performance of cyclists of all groups. The best sports performance in the 100 km road team race was achieved by the second group, where the load volume was increased in the supporting weekly cycle, but the intensity was reduced in relation to the competitive cycle.

2. Summarizing the results of the study, we conclude that the stage of special preparation for the team race lasted from 4 to 6 weeks. The composition of the team was completed, having run team races at 25, 50 and 75 km with a gap of a week, and two weeks before the Championship of Uzbekistan at 100 km, where the result was close to the planned one, on sections of 25 km.

Mobilization of all team capabilities was carried out 10 days before the 25 km race in the Asian Championships (Tajikistan).

In preparation for the 25 km team race it is necessary to use the method of interval training. In this case, the beginning and the end of the distance should be overcome at high potential, which will ensure high performance at the end of the distance.

3. Recommended dynamics of physical qualities of the athlete at the first stage - special endurance, pulse value of work in the test at 1450 yd.; the second stage - power endurance, the number of crank revolutions for 4 accelerations 190 rpm; the third stage - speed endurance, the number of crank revolutions for 4 accelerations 400 rpm. ; speed-power endurance at the stages of the annual cycle: preparatory period - average pedaling frequency 94 r/min; number of kilometers traveled 90 km; HR difference 144 ud/min; At the competitive period, the first stage of the competitive period - 97 r/min; 94 km; 19 ud/min, where at the second stage of the competitive period - 100 r/min; 100 km; 12 r/min respectively.

References

Dyshakov A.S. **(2010)** The structure of loads in the annual training cycle of professional cycling athletes / V.M. Maksimova, A.S. Dyshakov // Theory and practice of applied and extreme sports. - 2010. - No 3 (18). - pp. 50-53.

Kapustin A. A. A. A. Kapustin **(2009)** // Physical culture, sport - science and practice. - №3.-pp. 24-26.

Zakharov, A. A. **(2001)** Physical training of a cyclist / A. A. Zakharov. -M.: Fizkultura i Sport,- pp. 66.

Fomina L. D. **(2004)** Cycling sport: textbook / JI. D. Fomina, A. A. Kuznetsov, Y. I. Melikhov; St. Petersburg State Academy of Physical Culture named after P. F. Lesgaft. P. F. Lesgaft. - SPb.: VVM, 2004. - pp.45.

AUTHOR BIOGRAPHY:



Irina Nikolaevna TUKHFATULLINA

Employment
Lecturer at Uzbekistan state university of physical education and sports

Degree
MD

Research interests
Cycling race, Physical education and sport, Theory of physical education, Analyzing of sport competitions

E-mail:
irinatuxfatullina@mail.ru