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Dosing of Physical Load During Hiking Tours in View of Performance Parameters

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A hiking tour is one of the most popular forms of sports and fitness activity and mass physical culture. Its general objective is relaxation from professional and everyday stresses, and restoring to working condition. A hiking tour enables to develop vitally important skills: how to make a fire, cook meals, get geographical bearings, surmount obstacles, and help copartners. Besides, a hiking tour is a means of physical training under heavy load, as well as a measure of rehabilitation to working condition after stresses caused by other activities (Moskovchenko, Dyaditchkina, Bogaschenko, 1990).
The article presents the data received from the survey of the students and the staff of Krasnoyarsk universities. The survey was conducted with the purpose to clarify the main hardships of hiking tours and the causes of possible injuries.
The article describes particularities of dosing of physical load of hiking tourists in view of performing parameters. The empirical results are aimed at improving methods of dosing of physical load during hiking tours. The researches described the methodology of division of tourist load carrying equipment among the tourists. The article concludes the results of the pedagogical experiment which confirms the effectiveness of the innovative methodology offered as an alternative to the traditional approach.

Keywords: dosing of physical load, hiking tour, physical proficiency, performance capacity, physical load.

Introduction

A number of researchers (Strelets, Alfimov, Belousov, 1982; Sergeev, 1982; Fedotov, Vostokov, 2003) consider that physical load during hiking tours is subject to the length of the tour, the covered per day distance, the speed, and the weight of the tourist load carrying equipment.

This matter can form a background for the interest to days-long hiking tours that if considered as a type of lengthy physical training, may be regarded as one of the most effective means of health improvement. Hiking tourists need special preliminary training, even more; they are to have medical permission to participate in sport categorical hiking tours (Ruzhavsky,1979; Seluyanov, 2000; Sergeev, 1982).

The specificity of sport categorical hiking tours is the length (up to 8-9 hours a day) of

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physical load, with minor relaxation breaks. In this connection, many experts think that excessive load can lead to heavy over-strain by the second or third day of the hiking tour. To prevent breakdown, it is vitally important to capably adjust load, keeping it on the appropriate level (Vainbaum, 1991).

This view is coherent with the voice of some authors (Vlasov, 1977; Pokhabov, 2006) who suggest that about 25 percent of all the hiking tours' injuries are caused by insufficient physical proficiency or badly dosed physical load. In most cases it is excessive weight of tourist load carrying equipment that causes over-strain. It is also accompanied by significant reduction of concentration and dystaxia.

This evidence is also proved by 856 survey respondents – students and the faculty of Krasnoyarsk universities, regular hikers.

Fig. 1 shows the respondents' answers about the main injury causes during hiking tours. 57 percent of the respondents consider insufficient physical proficiency as the main cause. 52 percent of the respondents blame lengthy passages, and 44, 7 percent point to the excessive equipment weight. Besides, 32,5 percent of the respondents hypothesize that wrong safeguarding and self- safeguarding can also cause an accident. Among others, bad weather conditions (16,4 percent) and poor hiking discipline (11 %) were also listed.

Most respondents (68 percent) think that major problems (Fig. 2) during hiking tours are caused by the necessity of carrying a heavy backpack. 46,5 percent of the respondents indicate hiking conditions and pace as a major problem. Everyday discomfort is a problem for 31 percent of the people, and 29,3 percent complain on bad

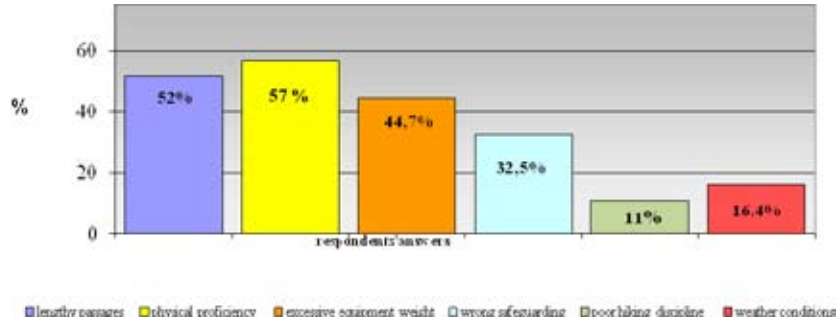

Fig. 1. Respondents' answers about injury causes during hiking tours

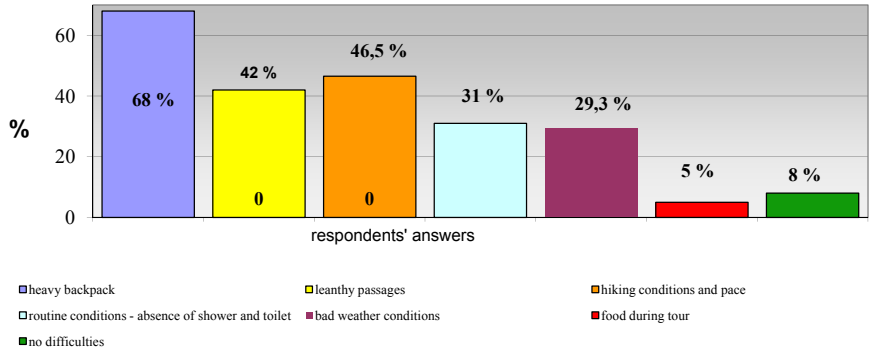

Fig. 2. Respondents' answers about major problems during hiking tours

Table 1. Rufye test: rate scale of indicators of cardiac activity (ICA)

Indicators	Grade
0,1 – 5	excellent
5,1 – 10	good
10,1 – 15	satisfactory
15 and more	poor

weather conditions. Only 8 percent do not suffer any difficulties during hiking tours.

During a hiking tour the tourist's high performance capacity under different levels of load intensity is a question of great importance. In tourism practice, it is common to outline three levels of load intensity, depending on the cardiac rate (CR).

- low intensity level of CR – 90-130 beats per minute;
- average intensity level of CR – 130-160 beats per minute;
- high intensity level of CR – 170-190 beats per minute.

Materials and methods

Within the research, the following hypothesis was advanced: prevention of overload and significant rise of performance capacity comes true under appropriate division of tourist load carrying equipment among the tourists with consideration for the indicators of performance capacity before the hiking tour starts. Other factors for achievement are appropriate pace and passage lengths with regard to participants' cardiac rates (CR).

In accordance with the hypothesis, the research with 135 respondents – both students and the staff of Krasnoyarsk State University, was conducted within in-service education university program in 2005- 2007. In the initial phase, we run six three-hours-long hiking tours, aimed at identification of the optimal correlation of the equipment weight to the tourist's weight. The sample group, 21 two-year students, equipped with backpacks of 14- 24 kg, were going up at an angle of 20-25°, following the experts' recommendations.

The sample groups covered the same route. The tour took 1 hour and 45 minutes in the mode of 10 minutes' walk and 3 minutes' break. The average motion pace was 90 steps per minute, the speed remained stable and made 3,5 km per hour. According to the recommendation of the leading experts (Sergeev, 1987; Ganapolsky, 1987; Granilschikov, 1983; Nakishin and Kostrub, 1991, Fedotov, 1985; Appenyansky, 1989; Vostokov, 2003 et.al.), during the first hiking tour, the weight of the boys' backpacks made 20-24 kg, and the girls' equipment weighed 14-16 kg. Before and just after each hiking tour, Rufye Test for examining of the general level of performance capacity and the body reaction on physical load was provided. Rufye Test is highly manageable in the conditions of a tour and for the processing of results (Sergeev, 1982). Rate scale of Rufye test served as a level of performance criterion (Table 1).

Fig. 3 shows the dynamics of average indicators of Rufye test of the hiking tours participants.

By means of "Polar" pulsimeters, the participants' CR indicators were fixed on the fifth minute of hiking, just after the passage cover and on the last minute of the relaxation break.

During the first and second tours, the equipment weight was cut in case of the first signs of overload. During the third, fourth and fifth tours, the weight of backpacks was changed against CR indicators, and was kept within the limits of 130-160 beats per minute, which correlates with optimal physical load for hiking tours. During the sixth tour, the weight of backpacks was the same as in the first and second tours. It was provided for identification of the condition levels in the process of research, if any.

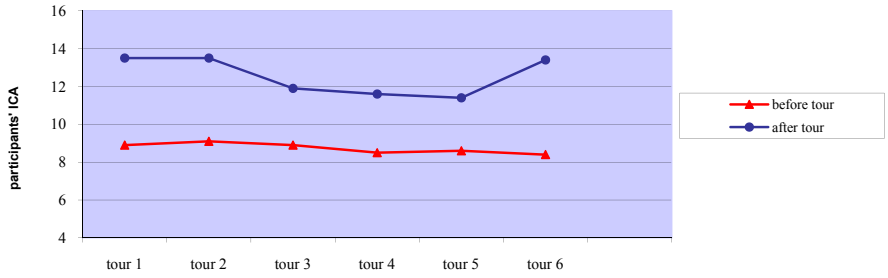

Fig. 3. Rufye Test: indicators of cardiac activity (ICA) dynamics of hiking tours participants

For reactivation, there was a four-day interval between the tours.

Results

Fig. 3 vividly shows slight changes of the indicators of Rufye Test before hiking tour, which proves that the participants were well-reactivated by the next tour. The dynamics of indicators after hiking tour shows that in average, the indicator level of Rufye Test rose to 13.5, which tell about heavy physical load of the participants and their significant performance decrement.

After the optimization of the equipment weight against CR during the third, fourth and fifth tours, the average indicators of Rufye Test decreased to 11.8, which tells about the notable load reduction against the same equipment weight. After another division of tourist load, done on the traditional recommendations during the sixth tour, the participants' indicators of physical load declined again.

Fig. 4 shows the graphs of the average CR indicators of the hiking tours participants.

Seen as a whole, average CR indicators after the third and fourth passages reached 180 beats per minute, and some participants performed 200 beats per minute. This evidence proves a very high level of work load. During the second and fourth tours, CR indicators of some participants also considerable exceeded against the norm of 160 beats per minute, though the dynamics was lower and not as clearly seen as in the first tour.

After division of tourist load against the CR indicators during the third, fourth and fifth tours, we observe notable reduction of average CR indicators and keeping them within the limits of 130-160 beats per minute throughout the duration of the tour.

As can be seen from the above, we fixed the optimal weight of tourist load for each hiking tour participant. In some cases, it made 40 percent of a body weight, in other cases, the equipment weight was considerably cut to 18 percent of the participant body weight.

Data analysis provided support for the development of the scale of tourist load division against individual parameters of physical proficiency (Table 2). The scale provides maximum possible correlation between the tourist load weight and the participant's weight against the indicators of Rufye Test, for both – men and women.

The second phase of the research was determined to estimate the optimal mode of motion during a hiking tour (correlation of hike load and recreation periods).

For this purpose, we run the weekend hiking tour, with 36 students and 3 teachers from the Faculty of Physical Culture and Sports. The participants were divided into three groups, according to preliminary testing results. Table 3 shows that indicators of performance capacity did not have significant difference.

Experimental Group 1 kept the following mode of motion: 20 minutes of active walk

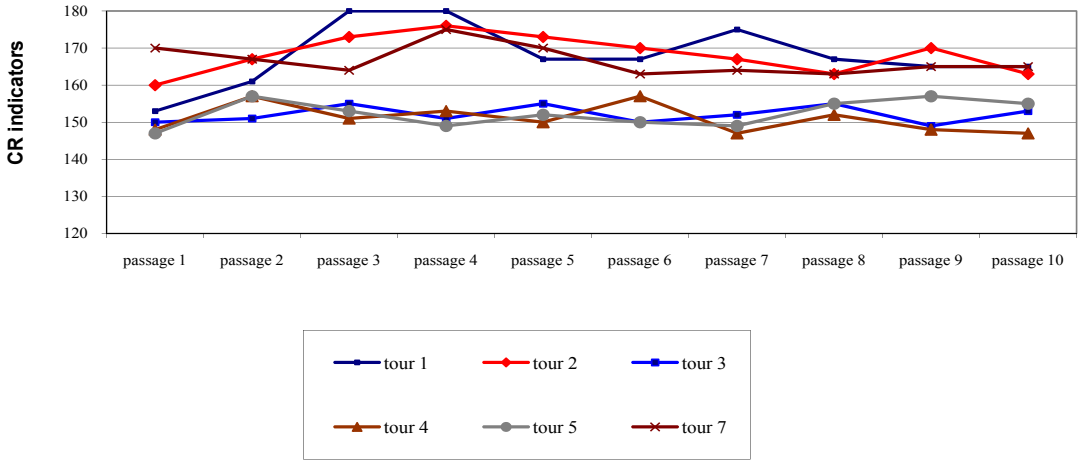

Fig. 4. Dynamics of average CR indicators among the hiking tours participants

Table 2. Scale of tourist load division against the indicators of Rufye Test

Indicators of Rufye Test (CA)	Correlation between the tourist load weight and the participant's weight (in percent)	
	men	women
0 – 5 (excellent)	40 – 50	35 – 45
5,1 – 10 (good)	30 – 40	25 – 35
10,1 – 15 (satisfactory)	25 – 30	18 – 25
more than 15 (poor)	at most 25	at most 18

was followed by 5 minutes of recreation. The participants from Experimental Group 2 walked during 30 minutes, which was followed by 8 minutes of recreation. The Control Group covered the same route with the same pace and equipment weight, but their active 50-minutes' walk followed by 5 minutes of recreation. The tourists' CA indicators were measured throughout the duration of the tour. Fig. 5 shows the dynamics of change of average indicators.

Fig. 5 clearly shows that the mode of motion of Experimental Group 1 (20 minutes of active walk, 5 minutes of recreation) leads to the participants' exhaustion in a less degree and enables to keep performance capacity. The results of retesting (Fig. 3) prove marked decline of performance capacity in the Control Group. The difference of the results received before and after the hiking tour is representative. In experimental groups, the difference is not representative, though the mode of motion turned to be more efficient (Fig. 5). Average CA indicators in Experimental Group 1 reached 135 beats per minute, and after the last passage cover – 125 beats per minute. In Experimental Group 2, average CA indicators made up 145 beats per minute, and in Control Group – 152 beats per minute.

To prove the advanced hypothesis, the pedagogical experiment was run in August 2006, during the third phase of the research. Two-year students from Krasnoyarsk State University became the participants of the first category mountain tour, in the natural part Ergaki.

Table 3. Indicators of Rufye Test of the second tour participants

Group	Before tour	After tour	t	P
	X ± m	X ± m		
Experimental group 1	7,3 ± 0,81	7,9 ± 0,67	0,57	> 0,05
Experimental group 2	7,6 ± 0,96	8,5 ± 0,79	0,82	> 0,05
Control group	7,5 ± 0,89	10,8 ± 0,62	**3,05**	< **0,05**
P	> 0,05	< **0,05**		

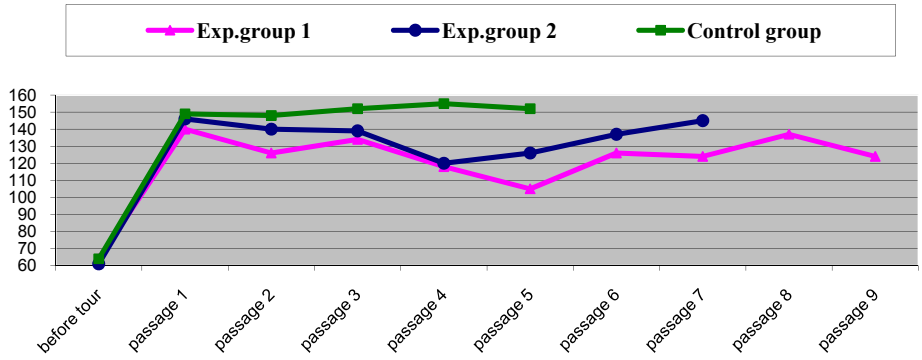

Fig. 5. Dynamics of average CA indicators among hiking tour participants

The participants were of the same age, but of different levels of physical proficiency. Before the tour, the performance capacity of each respondent was measured. According the Rufye Test results, two groups – Experimental and Control – were formed.

Table 4 shows that the difference of average Rufye Test indicators in experimental and control groups are not representative.

In the Experimental Group, we offered the tourist load division, according to the developed methodology (Table 2). Percentage of the equipment weight to the body weight fluctuated from 18 to 49 percent. Besides, we followed the optimal mode of motion: 20 minutes of active walk was followed by 5 minutes of recreation.

In the Control Group, weight distribution was offered with regard of accepted tourism norms; the equipment weight made from 24 to 32 percent of the body weight.

Throughout the duration of the tour, regular testing (Rufye Test) of the respondents was provided.

Fig. 6 shows the dynamics of average indicators of performance capacity in the Control and Experimental Groups.

Retesting of the respondents was conducted after the tour.

The study presents evidence of significant improvement of performance capacity in both groups by the fourth and the fifth days of the tour, followed by sharp decline of performance capacity in the Control Group (Fig. 6). To thoroughly examine the causes of these changes, we constructed separate graphs of performance capacity for each group (Fig. 7, 8).

Fig. 7 clearly shows that performance capacity of the participants changed randomly. The participants showing excellent indicators before the tour, the results notably improved by the second day of the tour, reached the peak

Table 4. Difference of CA Indicators among the Tour Participants

Groups	Before tour	After tour	P	surplus
	X ± m	X ± m		
experimental	8,6 ± 1,03	5,6 ± 0,9	**> 0.05**	**32 %**
control	9,2 ± 1.09	9,6 ± 1,03	< 0.05	**- 4 %**
P	< 0.05	**> 0.05**		

Table 5. Equipment weight distribution among the tour participants

	Control group										
	1	2	3	4	5	6	7	8	9	10	11
Body weight (kg)	64	75	65	78	74	59	67	58	61	55	63
Equipment weight (kg)	19	23	21	23	23	19	21	17	17	16	15
Correlation (%)	30	31	32	29	31	32	31	29	28	29	24
	Experimental group										
Body weight (kg)	63	62	62,5	73	61	93	55	82	52	34	
Equipment weight (kg)	31	29	27,5	29	17	24	20	16	15	9	
Correlation (%)	49	47	44	40	28	26	36	20	29	27	

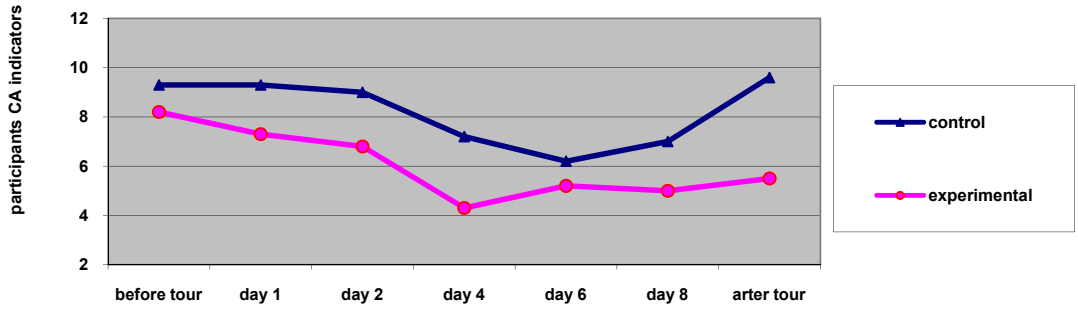

Fig. 6. Dynamics of indicators of performance capacity in the Control and Experimental Groups

(according to Rufye Test scale) and kept it throughout the duration of the tour. CR indicators of these participants after the physical load did not exceed 96 beats per minute, and rehabilitation lasted no longer than 60 sec. These findings elucidate the participants' underloading, since even official low load level (90-130) go beyond these parameters. Besides, their equipment weight was 10-11 kg (16-17 %) lower than the other participants' with the same body weight and indicators of performance capacity. Meanwhile, CR indicators of other participants reached 200 beats per minute, and recreation periods were not sufficient for rehabilitation.

Only one participant of the Experimental Group (Fig. 8) showed some signs of exhaustion, but after this backpack weight cut to 14 kg (17 percent of the body weight), his CR indicators lowed and kept the norms to the end of the tour.

Comparison between the indicators of performance capacity of hiking tours participants (Table 4) provides evidence that they significantly

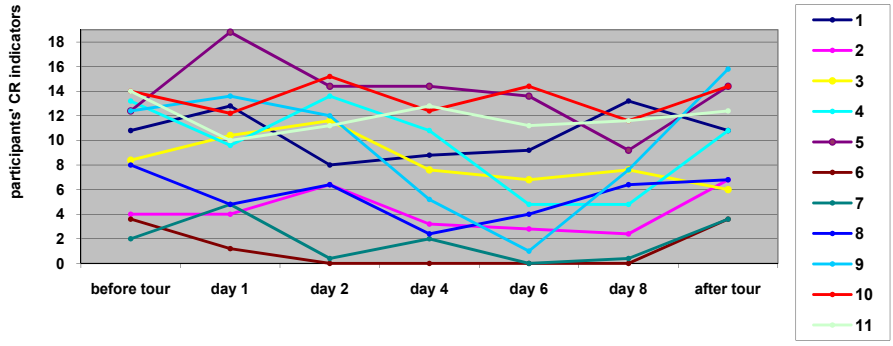

Fig. 7. Dynamics of changes of participants' CR indicators in the Control Group

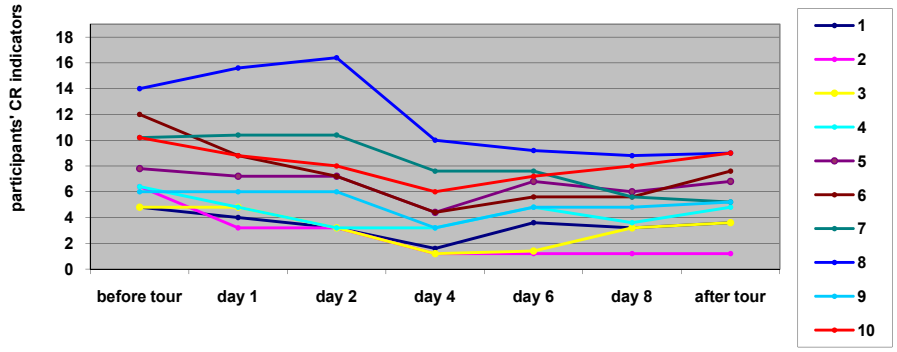

Fig. 8. Dynamics of changes of participants' CR indicators in the Experimental Group

improved in the Experimental Group by the end of the tour and showed significant difference with the indicators of the Control Group. Surplus of the indicators of performance capacity made 32 percent in the Experimental Group. The Control Group showed decline by 4 percent. Besides, three respondents from the Control Group made visible signs of exhaustion.

In summary, the hypothesis, advanced at the beginning of the research was proved, which led us to the following **conclusions**:

1. Individual parameters of performance capacity, despite age and gender, should serve as major criteria for division of tourist equipment load.

2. Measurement of participants' CR indicators and parameters of performance capacity enables to optimally dose physical load by means of changing the motion mode, recreation periods, redistributing equipment load, and, as a result, preventing exhaustion and raising participants' general performance capacity.

References

N.A. Agadzhanyan, Mountains and Body Resistance / N.A.Agadzhanyan, M.M. Mirrakhimov – M.: Nauka, 1970. – 186 p. (In Russian)

N.A. Appenyansky Tourism and Health: content, human resources, management problems / N.A. Appenyansky // Role and Objectives of Mass Tourism for Physical Education and Health Improvement. Collection of scientific papers. – M.: Turist, 1990. – 234 p. (In Russian)

F.G. Bagautdiniva Tourist-Regional Activity in the Primary School / F.G. Bagautdiniva – M.: CDYT&K, 2002. (In Russian)

Y.V. Baykovsky Basis for Mountaineering Training / Y.V. Baykovsky – M.: Vilad, 1996. – 80 p. (In Russian)

A.V. Belokon Analysis of the Problems of Health Maintenance of the University Students from the Southern Federal District / A.V.Belokon, G.A.Kuraev, G.I.Morozova // Valeology, №4, 2002. (In Russian)

I.L. Bekker Tourist-Regional Activity as Means for Forming Ecological Culture Among the Teenagers. / I.L. Bekker, //Synopsis of Thesis. – M.: 1995. – 23 p. (In Russian)

S.N. Boldurev , Complex Hiking Tours / S.N.Boldurev, V.I.Zhmuro – M.: Physical Culture and Sport, 1969. – 136 p. (In Russian)

A.A. Bulgakov, Two Days at the End of the Week / A.A.Bulgakov, G.Y.Ruzhavsky – M.: Physical Culture and Sport, 1984. – 127 p. (In Russian)

Y.S. Vainbaum Dosing of Physical Load of Schoolchildren / Y.S.Vainbaum – M.: Prosvescheniye, 1991. – 64 p. (In Russian)

E.I. Veretennikov , Tourists – Team Leaders Among Tourists: Education and Training / E.I. Veretennikov, I.A. Drogov – M.: Profizdat, 1990. – 176 p. (In Russian)

V.G. Varlamov Safety in Hiking Tour / V.G. Varlamov – M.:CREEB «Tourists» 1983. – 61 p. (In Russian)

A.A. Vlasov, Tourism. Guidance manual / A.A.Vlasov, A.G. Nagorny, – M.: Vysshaya Shkola, 1977. – 96 p. (In Russian)

L.A. Vyatkin, Tourism and Orienteering / L.A. Vyatkin, E.V.Sidortchuk, D.N. Nemutov, // Study and Teaching Aid. – M.: Academia, 2001. – 208 p. (In Russian)

V.I. Ganapolsky Tourism and Orienteering / V.I. Ganapolsky, et.al. – M.: Physical Culture and Sport, 1987. – 240 p. (In Russian)

V. I.Ganapolsky Seasons of the Year, or Invitation to Tour / V.I. Ganapolsky, – Minsk: Polumya, 1982. – 64 p. (In Russian)

V. I. Ganapolsky, On Physiological Mechanisms Of Tourist Activity / V.I.Ganapolsky // Scientific Issues of Tourism and Leisure. – M.: 1990, № 7. – 52-60 p. (In Russian)

Y.V. Granilschikov Family Tourism / Y.V. Granilschikov, – M.: Profizdat, 1983. – 112 p. (In Russian)

S.M. Gubanenkova Tourism in the Educational System / S.M.Gubanenkova – St. Petersburg: Petropolis, 2008. – 196 p. (In Russian)

A.V. Darinsky Tourism in the School Course of Geography / A.V.Darinsky // Teaching Aid. – M.: Prosvescheniye, 1978. – 135 p. (In Russian)

A.M. Zhikharev We are Going to Hike / A.M. Zhikharev – Yaroslavl, 2004. – 192 p. (In Russian)

I.A. Zdanovitch Sports and Health Tourism / I.A. Zdanovitch – Omsk: SibGUFK, 2005.-56p. (In Russian)

Y.S. Konstantinov, Kulikov V.M. Pedagogy of School Tourism / Y.S.Konstantinov, V.M. Kulikov,– M.: FCDYT&K 2006. – 208 p. (In Russian)

A.M. Koshelev Norms of Load for Days-Long Hiking Tours and Their Experimental Grounds / A.M. Koshelev, // Thesis. – M.: 1978. – 173 p. (In Russian)

E.E. Lynchevsky Psychological Climate in the Tourist Group / E.E.Lynchevsky, – M.: Physical Culture and Sport, 1981. – 111 p. (In Russian)

N.A. Lysogor , Tourist Food. / N.A.Lysogor, L.A. Tolstoy, V.V.Tolstaya – M.: 1980. – 96 p. (In Russian)

T.M. Maximova Modern Situation, Tendencies, and Perspectives of Evaluation of the Health of Population / T.M. Maximova, – M.: 2002. – 192 p. (In Russian)

A.G. Maslov Tourist Camps / A.G. Maslov, – M.: VLADOS, 2000. – 160 p. (In Russian)

O.N. Moskovchenko The Influence of a Complex Hiking Tour on Some Functional Characteristics of the Sportsman / O.N.Moskovchenko // Scientific conference abstracts. – M.: 1990. – P.105-108. (In Russian)

L.F. Nakishin, Kostrub A.A. Tourism and Health / L.F.Nakishin, A.A.Kostrub, – Kiev, Zdorovye, 1991. – 224 p. (In Russian)

B.I. Ogorodnikov Tourism and Orienteering / B.I.Ogorodnikov, – M.: Physical Culture and Sport, 1983. – 112 p. (In Russian)

S.A. Petrosyan On Norms of Physical Load of 12-15-year olds during Hiking Tours / S.A. Petrosyan, // Theory and Practice of Physical Culture. – 1990, № 6. – P. 53-56. (In Russian)

V.Y. Popchikovsky Management of Hiking Tours / V.Y. Popchikovsky,– M.: Profizdat, 1987. – 224 p. (In Russian)

D.D. Pokhabov Methods of Dosing of the Load during Hiking Tours / D.D.Pokhabov // – International Symposium Proceedings. – Krasnoyarsk, 2004. – P. 305-307. (In Russian)

D.D. Pokhabov, Geletsky V.M. Indicators of Performance Capacity as a Criterion for Dosing of Physical Load during the Hiking Tour./ D.D.Pokhabov, V.M. Geletsky // Conference proceedings. – Krasnoyarsk, 2006. – P. 243-248. (In Russian)

D.D. Pokhabov, Doroshemko N.O. Research on Optimal Load and Relaxation on Weekend Hiking Tours. / D.D.Pokhabov, N.O. Doroshemko // Conference proceedings. – Krasnoyarsk, 2006. – P. 243-248. (In Russian)

M.G. Pshenichnikova Adaptation to Physical Load / M.G. Pshenichnikova – M.: Nauka, 1986. – P.124-221. (In Russian)

L.G. Rubis Physical Youth Recreation by Means of Active Tourism. / L.G. Rubis // Synopsis of thesis. – St. Petersburg, 1995. – 24 p. (In Russian)

G.Ya. Ruzhavsky Training Sports Routs / G.Ya. Ruzhavsky – M.: Physical Culture and Sport, 1979. – 168 p. (In Russian)

V.N. Seluyanov Biological Basis for Sports Routs / V.N.Seluyanov, A.A. Fedyakin, – M.: SAP, 2000. – 123 p. (In Russian)

V.N. Sergeev Tourism and Health / V.N. Sergeev – M.: Progress, 1982. – 124 p. (In Russian)

V.N. Sergeev Tourism and Health / V.N. Sergeev – M.: Profizdat, 1987. – 80 p. (In Russian)

B.G. Strelets , Tourism and Health. / B.G. Strelets, et.al. – St. Petersburg, Znaniye, 1982. – 32 p. (In Russian)

Y.N. Fedotov, Vostokov I.E. Tourism. / Y.N.Fedotov, I.E.Vostokov, // Textbook. – M.: 2003. – 328p. (In Russian)

Y.L. Shalkov Health of the Tourist / Y.L. Shalkov, – M.: Physical Culture and Sport, 1987. – 144 p. (In Russian)

Y.A. Shturmer Role and Objectives of Mass Tourism for Physical Education and Health Improvement / Y.A.Shturmer, // Collection of scientific papers. – M.: Turist, 1990. – 170 p. (In Russian)

Y.A. Shturmer Imaginary and Actual Danger in Tourism / Y.A.Shturmer – Moscow, Physical Culture and Sport, 1983. – 144 p. (In Russian)

Y.A. Shturmer Preventative Measures for Tourist Traumatism. / Y.A.Shturmer // Training aid. – M.: Tourist, 1992. – 92 p. (In Russian)

S.P. Fokin Tourist-Regional Efforts as Means for Development of Cognitive Activity. / S.P. Fokin // Synopsis of thesis. – M.: 1994. – 22 p. (In Russian)

V.G. Tsygankov Forecast of Maximum Weight Load for Mountain Hikers. / V.G. Tsygankov , et.al. // Theory and Practice of Physical Culture. .- 1987, № 5.- 16 p. (In Russian)

Дозирование физической нагрузки в туристском походе с учетом показателей работоспособности

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Туристский поход является одной из наиболее распространенных форм спортивно-оздоровительного туризма и массовой физической культуры. Его основная задача – снятие утомления от профессиональной или бытовой деятельности, восстановление работоспособности. Туристский поход позволяет приобрести жизненно необходимые навыки и умения: быстро развести костер, приготовить пищу, правильно ориентироваться на местности, преодолевать различные препятствия, оказывать помощь своим товарищам. Кроме того, туристский поход можно использовать и как средство тренировки с достаточно большими физическими нагрузками, и как средство восстановления работоспособности после нагрузок от других видов деятельности (Московченко О.Н., Дядичкина Н.С., Богащенко Ю.А. 1990;.)

В статье представлены данные опроса студентов и преподавателей красноярских вузов, проведенного с целью выявления основных трудностей в туристских походах и причин травм, возникающих при занятиях спортивно-оздоровительным туризмом.

Рассматриваются особенности дозирования физической нагрузки участников туристских походов с учетом показателей работоспособности. Представлен исследовательский материал с целью совершенствования методов дозирования нагрузки в туристском походе. Описана методика распределения веса снаряжения между участниками похода, предложенная авторами, результаты педагогического эксперимента, в ходе которого подтвердилась эффективность разработанной методики, предлагаемой в качестве альтернативы традиционным.

Ключевые слова: дозирование физической нагрузки, туристский поход, физическая подготовленность, работоспособность, физическая нагрузка.