

Comparative analysis of the training programs of female skiers in the preparatory period of the annual training cycle

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Abstract. Continuous improvement of the training process in various groups and sports disciplines determines the current status of sports training.

Research in sports plays an important role. Such research is aimed at establishing the relationship between the dynamics of the athlete's status and training loads in the annual training cycle [1, 2].

Increasing results, increasing economic costs, the difficulty of providing training with equipment urgently require an intensive search for optimal ways to structure sports training, which allows achieving high sports results by improving sports training methods [3].

The article describes the features of the training programs of ski-racers. The experiment involved athletes of various qualifications with similar sports experience. The main parameters of the training process in both groups practically did not differ. In the experimental group, adjustments were made to the training program, as well as indicators were determined for step-by-step control.

Keywords: skilled ski-racers, training programs, sports experience, step-by-step control, preparatory stage.

I. INTRODUCTION

It is a well-known fact that the main losses during the multiyear training occur as a result of the transition from the junior stage to the use of accumulated motor potential. Often the orientation of the training effects is carried out arbitrarily, intuitively, without objective grounds and criteria.

The modern structure of the annual training cycle includes the preparatory period divided into two stages (general (May - July) and special (August-December) preparation) [4].

The main idea of general preparation is to create the foundation for the special training of skiers in winter. During this period, it is necessary to improve functional abilities, develop special physical qualities and improve motor skills taking into account the characteristics of a particular sport.

Special preparedness depends on the structure of the training process, the unit of which is the long stages of the preparatory period. Training qualified athletes requires taking into account both general (pedagogical) and special provisions: phases of training, effects of training, individuality of the training process, requirements for training and competitive loads combined with recovery processes [5, 6].

II. MATERIALS AND METHODS

Studies conducted on the identification of the criteria for sports experience and the factors determining them made it possible to establish the features of qualified ski-racers and training programs that determine gaining professional experience. This created objective prerequisites for research dedicated to the structure of the training process in the preparatory period of the annual training cycle for junior skiers.

The study was conducted on the premises of the South Ural State University during the annual macrocycle (2016-2017). The step-by-step control program included tests to assess general and special endurance, general physical fitness, the functional status of the cardiovascular system, respiratory system and performance.

The establishment of factors (features of training and competitive loads, training conditions) and criteria (individual and group indicators) that determine the special performance of athletes with various sports experience is one of the areas for improving long-term training. This provision creates objective prerequisites for the development and implementation of scientifically based criteria for the selection of gifted athletes. During the study, the main parameters of the training process in the annual cycle were recorded, reflecting the nature, focus and intensity of the training loads for certain months. The analysis of loads was carried out based on the periodization adopted in skiing [7, 8]. The preparatory period is divided into two stages: general (May 15 - July 31) and special (August 1 - December 15) preparation. The transition period (April - May) included: preparatory (December 15 - January 31) and main competitions (February 1 - April 15).

These materials reveal the relationship between load and qualification. The allocation of stable and variable indicators allows determining the structural features of the training process and preparedness of junior skiers. The results obtained determine the positive effect of using the theoretical principles and experimental data obtained for the improvement of the training process.

III. RESULTS AND DISCUSSION

Analysis of the performed loads by periods and stages was carried out in two groups of qualified athletes. This division into two groups is determined by the severity of the transition from junior to adult sports. One of the ways to solve this problem is to identify criteria for special performance and factors that determine it for highly qualified athletes (group "A", the Master of Sport category) and junior female athletes (group "B"). This creates objective prerequisites for developing scientifically based selection criteria for athletes and forming a higher level of sports experience (Table 1).

TABLE I. MAIN CHARACTERISTICS OF TRAINING PROGRAMS FOR SKI-RACERS

Training load						
Group		Sports experience, years	Training days, number	Training times	Cyclic load, km	Acylic load, km
A	min	8	237	345	6704	78,3
	max	13	247	369	6982	84,7
B	min	5	236	298	4753	65,0
	max	7	257	326	4951	72,4

Any training impact should be considered by focusing on adaptation restructuring (the intensity and direction of urgent and long-term changes, sports results, etc.) and the factors that determine it (data on training and competitive loads, previous motor experience, etc.).

The implementation of these causal relationships provides adequate, selective and appropriate influence on various structures of the training process.

For ski-racers of high qualification during the preparatory period, the indicators of training loads change in waves.

A similar trend for the total load was established for ski-racers of group "B".

The monthly volume of cyclic training load during the general preparatory stage increased from 157 km in May to 540 km in July and remained at the same level in July and August (540 km in July, 537 km in August). However, in October, training load decreases to 346 km, and, in November, it increases to 683 km. The dynamics similar to group "A" was noted in terms of the average volume of an individual load, while the absolute values of these indicators are significantly higher for more qualified athletes.

Changes in the number of training days and individual training sessions for months are identical for athletes of group "A" and for athletes of group "B". If the number of training days is almost the same, the number of workouts is slightly higher for the athletes of group "B". The latter determines a significantly larger "dose" of the effects of a separate training session in athletes of group "A".

The average monthly values of the acyclic load in May are 6.0 hours, in June - 3.9 hours, July - 5.1 hours, in August - 8.6 hours, in September and October - 6.1 – 5.3 hours. At the end of the preparatory period, this indicator remains almost the same as in November - 5.8 hours (Table 2).

TABLE II. TOTAL VALUES OF TRAINING LOAD FOR SKI-RACERS IN THE PREPARATORY PERIOD (M ± T)

Group	Month	Training days, number	Training times	Cyclic load, km	Acylic load, km	Average training load, km
A	16-31 May	10±3	10±3	191±51	7.4±0.4	19.0±1.6
	June	21±1	21±2	287±12	5.5±0.5	13.0±1.4
	July	19±1	34±1	661±50	8.3±0.9	19.0±1.1
	August	23±1	40±1	708±31	9.6±1.2	17.0±1.3
	September	20±2	35±1	754±71	6.8±0.3	21.0±1.2
	October	20±1	30±2	629±44	8.2±0.6	19.0±0.8
	November	24±1	40±2	1002±51	8.9±0.4	23.0±1.2
	1-15 December	13±2	18±1	418±25	3.9±0.2	19.0±1.0
Total		150±6	228±11	4650±41	58.6±4.6	12.0±1.1
B	16-31 May	13±1	13±1	157±24	6.0±0.6	12.0±1.1
	June	17±2	23±4	313±54	3.9±1.7	13.0±0.5
	July	29±1	29±1	540±30	5.1±1.0	18.6±0.3
	August	20±1	30±3	537±67	8.6±2.7	17.9±1.0
	September	21±2	29±1	474±20	6.0±1.5	16.±0.7
	October	23±3	26±2	346±38	5.3±0.7	13.3±0.4
	November	23±2	36±2	683±53	5.8±0.4	18.9±0.4
	1-15 December	12±±	12±1	207±11	2.3±0.3	17.2±0.3
Total		158±12	98±19	3157±38	43.0±11	

IV. CONCLUSION

Thus, the training programs of ski-racers in the preparatory period are characterized by wave-like changes in the main indicators of training loads with two "peaks" when using cyclic and acyclic exercises for athletes of group "A" and "B".

In conditions of off-snow training, the monthly volume of cyclic load, the average value of an individual training, the number of training sessions was maximum in August, September, and during on-snow training in November.

The volume of acyclic load increases in May-October, which allows establishing a "bifurcation" point, a contrasting method for including cyclic and acyclic means of training.

The volume of acyclic means of training increases in May-October, which allows making a conclusion about a "split" in time. This increase at the beginning and at the end of the preparatory period, speaks of a "bifurcation" in time, a way of contrasting the inclusion of cyclic and acyclic means of training.

A large amount of cyclic (by 32%) and acyclic (by 26%) means of training for athletes of group "A" combined with an increased number of training days (158 ± 12 against 150 ± 6) compared to the number of training days for girls of group "B" indicates:

- a) a larger "dose" of a single training impact in athletes of group "A";
- b) greater main indicators of training load for the athletes of group "A" (the minimum and maximum monthly volume of cyclic training load was 191 ± 51 km in May and 1002 ± 51 km in November).

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