

THE FEASIBILITY OF USING CIRCULAR TRAINING METHOD FOR SKIERS-JUNIOR WITH REGARD TYPOLOGICAL PROPERTIES NERVOUS SYSTEM

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Annotation. *Purpose:* to determine the effect of a circular method of training on physical performance junior skiers depending on the strength of the nervous system. *Material:* the study involved 22 skiers (age 11 years). They were divided into 2 groups (11 people): experimental and control. In the experimental group 1 weekly circular training method used. The study was conducted in consultation with parents. Performance was determined using a bicycle ergometer first baseline and at 6 months after the study. At one stage (preparatory) conducted screening test and familiarize coaches with the goals and objectives of the study. Stage 2 (experimental): a) the subjects were divided into 2 groups; b) determined hypnotizability subjects; c) performance evaluation test was conducted at the beginning and end of the study. At stage 3 (final) analyzed the results of the study. *Results:* It was found that all subjects grade 3 hypnotic state. In the experimental group (using group training) after 6 months of regular exercise saw an increase in physical performance by an average of 56 kg m / min. In the control group (training was accepted by the program) there was an increase in physical performance average of 52 kg m / min. *Conclusions:* noted that all skiers same strength nervous system (weak). It is recommended to conduct training on the same program. Circuit Training should be carried out taking into account the anthropometric data and the initial physical fitness. Circular method of training does not contradict the basic principles of skiers: a gradual increase in the volume and intensity of physical activity.

Keywords: athletes, circuit training, hypnotizability, operability.

Introduction

In sports, growth of sportsmen's workability is achieved at the cost of gradual increasing of physical loads' scopes and intensity. For this purpose training methodic are improved, which include individual features of organism, such as: height, weight, lungs' capacity, status of cardio-vascular system, endured diseases and etc. [3, 4, 13, 22]. Disadvantage of this approach is the fact that individual features of sportsmen's nervous system are not considered.

The data of a number of scientific researches witness that reasons of serious fails in training of junior sportsmen are absence of required sequence in increasing of loads' scope and intensity (R.Ye. Mogylianskaya, L.I. Stogova, A.G. Dembo et al.). With it scope of loads shall be understood as total quantity of training work, fulfilled in one training session, week, month and year. It is expressed as time, spent for exercise, as quantity of kilometers of run distances, as weight of exercises' loads, as quantity of fulfilled exercises and so on. Intensity is understood as tension of training work and time of its fulfillment. It is measured by mass of applied weights, as speed of movements and etc.

It is known that human workability is connected with power of nervous system; that is why it is purposeful to regard concepts of features of sportsmen's nervous system. First, concept of "Nervous system's power" was offered by I.P. Pavlov in 1922. As per Pavlov individual, having strong nervous system, is able to fulfill work during more time in comparison with a person, having weak nervous system. I.P. Pavlov distinguished four types of nervous system and found their likeness with psychological types of temper:

1. Strong, balanced, mobile type – sanguine temper;
2. Strong, balanced, inert type – phlegmatic temper;
3. Strong, imbalanced, with dominating excitation – choleric temper;
4. Weak type – melancholic temper.

Strength of nervous system is one of main properties of nervous system, which reflects limit of cerebral cortex cells' workability, i.e. their abilities to endure excitation without coming to inhibition state [1, 2]. Its properties were studied by V.M. Zatsiorskiy, V.M. Filin (1962); B.M. Teplov (1963, 1965, 1967); V.G. Gorozhanin, M.A. Godik (1966); E.A. Golubieva (1972); T.F. Bazilevich (1974); Ye.P. Ilyin (1975); I.P. Blokhina, N.V. Zimkina (1977); M.V. Bodunov (1980); Ye.N. Surkov (1984); V.P. Ozerov (1989); V.L. Talanov (2007). Omelyanenko V.I. (2014) [17-20] and a number of foreign authors [14-16, 21].

By the present time there have been accumulated a lot of facts of data not compliance with determination of typological features of nervous system with the help of questionnaires and experiments. For example, using of questionnaires resulted in sportsmen's self-observations (I.K. Popesku, 1955; Z.I. Biriukova, 1961; B.I. Yakubchik, 1964 et al.). It is known that the weaker nervous system is the higher is the depth of hypnotic sleep, therefore determination of sportsmen's hypno-ability permits to determine strength of their nervous system. Therefore, when constructing training programs it is necessary to consider individual features of nervous system.

Owing to the fact that coaches do not consider nervous system's power it is urgent to use circular method of training, which can result in non compliance of nervous system's typological features and the state of over-training. Rather detail information about circular method of training is presented in work by V.I. Filimonov, A.R. Popova, Kh.M. Yusupov, 1986. The authors offer circular method as consequent fulfillment of certain complex of different exercises (every exercise with constant power fulfilled in turn).

In our work we observed development of physical strength of junior skiers, who are trained with application of circular method [6, 7, 12].
The work has been fulfilled in compliance with plan of SRW of School of higher sportsmanship in Nikolayev.

Purpose, tasks of the work, material and methods

The purpose of the work is to determine influence of circular method of training on physical workability of junior skiers, depending on nervous system's power.

The object of the research: junior skiers of 11 years old age. *The subject of the research:* the process of workability's changing under influence of circular method of training of junior skiers, depending on nervous system's power.

The tasks of the research:

1. Determination of junior skiers' hypno-ability;
2. Determination of dependence of junior-skiers' workability on their hypno-ability.

Hypothesis of the research: we assumed that junior skiers have weak nervous system, because the process of organism's formation has not been completed yet and circular method of training would be suitable for all tested equally under condition of uniformity of anthropometric indicators. If this hypothesis is wrong then there will be changes in sportsmen's workability, depending on typological features of nervous system: some sportsmen will demonstrate increasing of workability, other – will show reduction of physical workability, caused by non-compliance of load and functional potentials of an individual.

The methods of the research: theoretical analysis of scientific literature, pedagogic observation, testing, psychological influence.

Organization of the research: 22 skiers of 11 years old age participated in our research; they were divided in two groups (11 persons in each) – control and experimental. In experimental group we applied circular method of training 1 time a week. The research was conducted by parents' agreement. Workability was determined with the help of ergometric bicycle at the beginning of the research and 6 months after it.

At 1st stage preparatory- we carried out selection of the tested and familiarization of coaches with aims and tasks of the research.

At the 2nd stage – experimental, we fulfilled:

- a) the tested were divided in 2 groups;
- b) determination of hypno-ability of the tested;
- b) evaluation of workability of the tested at the beginning and at the end of the research.

At 3rd stage – final one- we carried out analysis of results of the research.

Results of the research

The fulfilled examinations showed 3rd degree of hypno ability of all the tested.

In experimental group, where we used group training, after 6 months of regular trainings we registered increase of physical workability in average by 56 kgm.p.min.

In control group training were conducted by traditional program and we registered increase of individuals' physical indicators in average by 52 kgm.p.min.

All skiers of experimental and control groups had weak nervous systems. It is explained by the fact that by 11 years age organism has not reached complete development.

It is known that indicators of different parts of brain do not always coincide between each other by strength of nervous processes. Besides, research of different zones of brain shall be conducted simultaneously, but this process is rather difficult and requires presence of not only appropriate instrumentation but also qualified operators of this instruments.

Advantage of “hypnotic” research of nervous system in comparison with other methods is that “hypnotic” methods do not require special expensive experimental equipment. For example Ye.P. Ilyin offered simple express-method of determination of nervous system power – tapping-test. But, as it became known further, result of this arbitrary motion method to large extent depends not only on nervous system's power and typological features of nervous system but also on how instructions and motivation of the tested was carried out. B.M. Teplov pointed that for diagnostic of typological features of nervous system it is necessary to use only “involuntary” responses and based on them “involuntary” methods [5, 8, 10].

The reason of discrepancy in researches of features of nervous system is imperfectness of methodic of sportsmen's examinations; that is why it is not reliable to base on results, received with the help of questionnaires and arbitrary motion methods.

It is known that inhibition of brain's neurons is in the base of hypnotic state. If this inhibition comes quickly – individual has weak nervous system, if it comes slowly – nervous system is strong. In hypnotic state spread inhibition of cerebral cortex takes place and as per classification of hypnosis we can determine hypnotic stages in short period of time [9, 11].

Basing on above said, all sportsmen shall be divided into 3 groups by their hypno ability. After determination of hypnotic stages it is necessary to work out new training methodic for every group of sportsmen, considering their hypno-ability. With working out of training methodic it is necessary to consider that sportsmen with strong nervous system feel tiredness later than sportsmen with moderate and weak nervous system.

Owing to the fact that nervous system organizes and coordinates functioning of all organism's parts and fulfills its connection with external world, then without consideration of individual features of personality's nervous system it is impossible to train sportsman of high level.

Conclusions:

In connection with the fact that all tested skiers of 11 years old age had equal (weak) nervous system then trainings shall be conducted by one program, including circular training, considering only anthropometric data and initial physical conditions. Circular method of training does not contradict main principles of junior skiers' initial training: gradual increasing of scope and intensity of physical loads.

Further researches are planned to be fulfilled with other age categories of sportsmen of different kinds of sports.

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