

## INNOVATIVE WAYS OF SPECIAL ENDURANCE OF SKATERS IN THE COMPETITION PERIOD

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**Annotation.** The purpose of the study – to propose innovative methods to improve special endurance of the skaters in the competition period. The state of the matter in the practice of preparation of the skaters is considered. It is marked metabolic modes competitive programs skaters on the principle of selective M.R. Smirnov. This is an indicative plan of training microcycle training dancing couple. It is shown that the use of the principle of selective metabolic mode M.R. Smirnov in practice allows comprehensive training skaters to influence the level of development of functional capabilities athlete. It was found that the use of this technique allows us to make training process more manageable by monitoring training loads. It is offered prospects of further studies to optimize the training process of the skaters in the annual cycle of training.

**Keywords:** figure skating, metabolic, mode, microcycle, training.

### Introduction

Specialists in figure skating concur that sportsmen, who specialize in this kind of sports, must have well developed muscular system and special endurance. This sector of training is realized with the help of sports out door games with application of field and tracks exercises, gym apparatus and different loads [1, 3, 9].

In the system of figure skaters' training, means of general physical preparation (GPP) are mainly used as methods of emotional restoration and create preconditions for complex mastering of figure skating elements. Special physical preparation (SPP) of figure skaters is built considering bio-mechanical structure of figure skating elements. This is the main task of SPP. It develops owing to increase of sliding speed, complicating of many turn jumps, lifts and musicality. Organism experiences especially high loads when fulfilling free skating: during 3.5 – 4 minutes it is necessary to slide at high speed, interrupting this sliding by jumps, rotations, steps and in pair skating and dances – by different lifts and twist lifts. Such kind of motion activity requires high level of power endurance and coordination [2, 4, 8].

Training shall be oriented on minimizing of tiredness in the process of elements' fulfillment during competition show. Tiredness as a result of lactate and metabolism products' accumulation in sportsman's working muscles, influences on sliding speed and elements' technical level by the end of free skating. In this connection, the probability of fallings, receiving of penalty points or not considered elements increases, that automatically throws sportsman away from prize three. Execution of great scope of training loads not always influences positively on figure skater's functional readiness and often hinders preparation of sportsman to competitions. Main orientation of sportsman's preparation shall ensure realization of adapting reconstructions of selective orientation, which would correspond to specificity of figure skating [4, 8, www.isu.org].

Efficient fulfillment of works at sub-maximal level during the time, which is stipulated by specificity of competition activity, directly depends on figure skater endurance level. Application of auxiliary means for maintaining of high level of functional preparedness in competition period is not always desirably efficient; on the contrary, very often it results in failure of adapting responses. This fact exactly predetermined the orientation of the present research.

The work has been fulfilled as per the plan of scientific & research works of Kharkov national university of arts, named after I.P. Kotliarevskiy.

### Purpose and tasks, material and methods

*The purpose of the work* is to offer innovative ways for perfection of figure skaters' special endurance in competition period.

### Results of the researches

In building of figure skaters' training process one-cycle planning prevails. Preparatory period takes 4 months, from June to August or September. Competition period depends on competitions schedule and usually takes about seven months, from October to March-April. In this period series of Grand-prize, national cups competitions, European and world competition are conducted.

With composing of annual plan of training it is necessary to consider that in the structure of figure skaters' preparedness the most important are: aerobic and anaerobic energetic abilities, speed-power preparedness and power endurance. In preparatory period the preconditions to successful mastering of new competition programs are created. Main attention should be paid to means of power endurance improvement in preparatory period [2, 5].

In the opinion of specialists [5, 7, 10, 11, 12], provision of high level of special workability during long competition period is possible owing to the following:

- rather long (up to 6 months) preparatory period, which could be sufficient for formation of steady adapting reconstructions in organism;
- gradual and smooth increase of load in preparatory period and ad gradual reduction of it in competition period;
- progressive increase of intensity of training loads;

However maintaining of high workability during all competition period is still a problem. Due to the fact that after mastering of competition programs in the whole, training and mastering of their separate elements, their links and again programs are accented, while daily work on ice takes from 2 to 5 hours, the means of auxiliary training, which are oriented on maintaining of figure skater's physical level, are minimized.

There is no doubt that functional changes in sportsman's organism are caused in the process of his training of ice, by most of specialists still prefer cross country as an additional mean of workability's maintaining. The level of workability remains rather high but with it sportsmen often complain of insufficient endurance at the end of competition program performance, because run is not a specific for figure skater mean. As an alternative to cross country we can offer training of the same specific elements, elements' links and competition programs, but they shall take time sufficient for starting of metabolic energy supply mode, which was proposed by M.P. Smirnov [6] (see table 1).

Table 1

*Metabolic modes of competition programs, calculated on the base of "principle of selectivity" by M/P/ Smirnov [6].*

Original dance	Free dance
E3	E3
E3-4	E3-4
E4	E4
N4-5	N4-5
	N5

Notes: dominating metabolic modes are in bold type.

As it is seen in the table, original and free dances are in similar metabolic modes. It permits to plan loads equally efficiently for these kinds of program.

For this purpose original and free dance are divided into components: elements, elements' links, the whole program. These elements correspond to the duration of switching into work of definite energy supply source. After it, training program, oriented on preparation to definite type of dance is composed and the methods of training influence, pulse regimes are selected.

Model program of weekly micro-cycle is as follows:

#### Monday

1 training. Warming up.

Ice: 1) Links of duration up to 30 seconds (pulse up to 160) x 5 repetitions, 2 series, rest between repetitions 2 – 3 minutes; between series – rest 6 minutes.

2) Links of duration up to 1 minute (pulse up to 165) x 3-4 repetitions, rest between repetitions 2.5 – 3 minutes.

2 training. Choreography.

#### Tuesday

1 training. Warming up.

Ice: 1) Links of duration 1 minute each (pulse up to 170) x 4 repetitions, 2 series, rest between repetitions 3.5 – 4 minutes; between series – rest 8 minutes.

2 training. Choreography.

#### Wednesday

1 training. Warming up.

Ice: Time period of 2.30 – 2.45 minutes, work with original dance (pulse up to 175) x 3 repetitions.

2 training. Choreography.

#### Thursday

1 training. Warming up

Ice: 1) Links of duration 1 minute (pulse up to 165) x 4 repetitions, rest between repetitions 2.5 – 3 minutes.

2) Links of duration up to 30 seconds (pulse up to 160) x 5 repetitions, 2 series between repetitions 2 – 3 minutes; between series – rest 6 minutes.

2 training. Choreography.

#### Friday

1 training. Warming up.

Ice: 1) Links of duration up to 1.5 minutes each (pulse up to 170) x 4 repetitions, 2 series, rest between repetitions 4 – 5 minutes; between series – rest 8 – 10 minutes.

2 training. Choreography.

#### Saturday

1 training. Warming up.

Ice 1: Free program 3-4.5 minutes (pulse up to 180) x 3 repetitions, rest between repetitions 8 – 10 minutes.

Ice 2: Links of duration up to 40 seconds (pulse up to 155-160) x 5 repetitions, 2 series rest between repetitions 3 – 3.5 minutes; between series – rest 6 minutes.

2 training. Choreography.

Sunday

Day off

Application of this methodic for raising of functional preparedness level was tested with couple Sara Robert Sifawy, Alexander Lubcheko – bronze prize-winners of France national championship in figure skating.

#### Summary

Application of principle of selectiveness of metabolic modes by M.P. Smirnov permits to fully influence on the level of sportsman's functional abilities development and, at the same time, to improve technical side of preparation that automatically brings training influence closer to specific conditions of competition activity. Application of the given methodic permits to minimize training scopes at the accounts of reduction of auxiliary preparation means' and general physical preparation's shortening and, as a result, to avoid over-training before competitions, to make training process more controllable owing to monitoring of training loads and their timely correction, depending on the state of sportsman.

In further researches it is planned to develop principle models of figure skaters' training season, principle models of meso and micro cycles, as well as to provide methodological recommendations on construction of pre-season preparation program, orientation of training loads' scopes depending on the period of preparation.

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