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MODEL PROGRAMMES FOR STATIONARY WALKING AND RUNNING

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ABSTRACT
The aim is developing of Model programmes for stationary walking and running, intended for female students with body mass index - " at the norm", "prior obesity 1", "prior obesity 2", "obesity 1st stage", "obesity II and III stage" and follow up of pulse frequency at trainings with the basic models of the programmes. Each programme contains five models, of which four are preparatory (with progressing difficulty), and the fifth one is a basic model. Established the limits of the average heart rate during the sessions of the basic models. Model programmes with stationary walking and running lead to overcoming the problems of the sedentary way of life. They could be applied successfully for overcoming the over-the-norm weight and obesity.

Key words: students, body mass index, pulse frequency, immobility

INTRODUCTION

Contact with Nature, walking and running in the open air charge positively the organism of human being. But during the cold winter months, during examinations and when there is no possibility to train out-of-doors, practicing of trainings with stationary running and walking is suitable – it is a motor activity that could be applied successfully at home and helps avoiding the problems of the sedentary way of life.

In the literature available, only three authors have developed programmes for stationary running. The programme of Kalaikov, 1982 (1) is the simplest one. It is intended for 12 weeks. It starts with one minute during the first week, and reaching 20 minutes during the last one. The programme of Kenet Kouper , 1986 (2) is conditionally divided into two parts – introduction and main one of total durability 3-4 months. In the programmes of Davidov, 1984 (4), each one of trainings represents structurally completed training with preparatory, main and concluding part. Davidov , 2010 (4) has developed programmes for home running too, dividing the trainees into four groups according to age.

The aim is the development of Model programmes for stationary walking and running, intended for female students with body mass index "at the norm", "prior obesity 1", "prior obesity 2", "obesity I degree", "obesity II and III degree" and following up of pulse frequency with trainings with the basic models of programmes.

Tasks of the investigation are the following:

1. Development of Model programmes for stationary walking and running, intended for female students of body mass index "at the norm", "prior obesity 1", "prior obesity 2", "obesity I degree", "obesity II and III degree".
2. Follow up of pulse frequency with trainings with the basic models of programmes.

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METHODS

The index of body mass of 385 female students has been established, of whom 84 female students have been defined for follow up of the pulse frequency at "stationary walking and running", distributed as follows: *18 female students with Body Mass Index (BMI) "at the norm"; 18 female students with Body Mass Index (BMI) "prior obesity 1"; 18 female students with Body Mass Index (BMI) "Obesity I"; 6 female students with Body Mass Index (BMI) "obesity II"; 6 female students with Body Mass Index (BMI) "obesity III".*

Pulse frequency has been measured by pulse-testers Sigma Sport PC7. The height has been measured according to the standard method, and for body mass measurement and defining of the individual BMI, the professional medical apparatus of the Japanese company "TANITA" has been used. The International classification of BMI has been applied, according to the World Health Organization (6).

Suitable music as a background has been chosen for fulfillment of the Model programmes. DIGITAL MP3 PLAYER has been used.

ANALYSYS OF THE RESULTS

The developed Model programmes are intended for female students being five in number, as follows: Model programme for female students with BMI "at the norm (BMI from 18,5 to 24,99); Model programme for female students with BMI "prior obesity 1" (BMI from 25 to 27,49); Model programme for female students with BMI "prior obesity 2" (BMI from 27.5 to 29,99); Model programme for female students with BMI "obesity I degree" (BMI from 30 to 34,99); Model programme for female students with Body mass index "obesity II and III degree" (BMI from 30 to 34,99 and BMI from 35 to 39,99).

Each programme contains five models, of which four are preparatory (with progressive difficulty), and the fifth one is a main model.

Depending on the preparation and according the preferences:

- the trainees could pass through all stages consecutively;
- to use the programme for work, intended for a certain stage;
- or to train on the main/basic model of the programme.

On choosing a model, it is necessary to keep the condition**:** pulse frequency to be 110-150 beats/min.

Prior starting the trainings with stationary walking and running, it is necessary to hold consultation with the GP of the state of cardio-vascular system, or availability of other diseases, for which such loadings are counter-indicative.

Dress should be comfortable, made of natural materials. On it, if necessary plastic training suit could be put. Body areas with increased quantity of fat tissue, could be wrapped up with household foil (for stimulating of additional sweating). Sport shoes should be comfortable.

Running and walking should not be carried out on firm surface. For the purpose, suitable cover could be used.

Training is carried out at open window with favorite music, which is a powerful emotional stimulus for the organism. Of important significance for the correct dosing of loading is the choice of suitable music. For first, third and fifth element, music should be 130 beats/min, and for second and fourth element – 140 beats/min.

It is necessary to observe some requirements, connected with the techniques of stationary running and walking:

- On stationary running, the foot (metatarsus) should go through the position "heel-toes" and should be lifted up about 20 cm from the floor. Head and back should be kept upright, and the arms and shoulders should move in front-rear direction without any strain.
- On stationary walking, the movement of pelvis should resemble the sport walking. Foot should go through the position „toes-heel". It is recommended for pelvis to move markedly leftwards-rightwards, in order to provide additional loading of muscles of waist and hip. Head and back should be upright, and arms and shoulders should move energetically, but without any strain.

It is recommended prior the model programmes for stationary walking and running, to make general developing exercises, representing *a preparatory part* of training, and in the end, most suitable for the *concluding part* are the breathing exercises and stretching.

Model programmes with stationary walking and running contribute for overcoming of problems of sedentary way of life. They are applied successfully in the complex model for overcoming of over-weight and obesity.

Table 1. *Model programme for female students of Body mass index "at the norm" (BMI from 18,5 to 24,99)*

PREPARATORY MODELS				
FIRST MODEL: Durability – 12 min, of which 3 min for stationary running and 9 min for stationary walking.				
4 min walking	2 min running +1 min walking +1 min running	4 min walking		
SECOND MODEL: Durability – 20 min, of which 6 min for stationary running and 14 min stationary walking.				
4 min walking	2 min running +1 min walking +1 min running	4 min walking	2 min running +1 min walking +1 min running	4 min walking
THIRD MODEL: Durability – 12 min, of which 4 min for stationary running and 8 min stationary walking				
4 min walking	4 min running	4 min walking		
FOURTH MODEL: Durability – 20 min, of which 7 min for stationary running and 13 min stationary walking				
4 min walking	4 min running	4 min walking	2 min running +1 min walking +1 min running	4 min walking
MAIN MODEL: Durability – 20 min, of which 8 min for stationary running and 12 min stationary walking. Music – 130 – 140 beats/min				
4 min walking	**4 min running**	**4 min walking**	**4 min running**	**4 min walking**

Average pulse frequency of persons investigated with the experimented main model for female students with Body mass index "at the norm" is 127 beats/min. Maximum frequency is 140 beats/min, and the minimum one - 129 beats/min.

Table 2. *Model programme for female students with BMI "prior obesity 1" (BMI from 25 to 27,49)*

PREPARATORY MODELS				
FIRST MODEL: Durability – 12 min, of which 2 min for stationary running and 10 min for stationary walking.				
4 min walking	1 min running +1 min walking +1 min running +1 min walking	4 min walking		
SECOND MODEL: Durability – 12min, of which 2 min for stationary running and 10 min stationary walking.				
4 min walking	2 min running +2min walking	4 min walking		
THIRD MODEL: Durability – 20 min, of which 4 min for stationary running and 12 min stationary walking				
4 min walking	1 min running +1 min walking +1 min running +1 min walking	4 min walking	1 min running +1 min walking +1 min running +1 min walking	4 min walking
FOURTH MODEL: Durability – 20 min, of which 4 min for stationary running and 16 min stationary walking				
4 min walking	2 min running +2min walking	4 min walking	1 min running +1 min walking +1 min running +1 min walking	4 min walking
MAIN MODEL: Durability – 20 min, of which 4 min for stationary running and 16 min stationary walking. Music – 130 – 140 beats/min				
4 min walking	**2 min running +2min walking**	**4 min walking**	**2 min running +2min walking**	**4 min walking**

Average pulse frequency of individuals investigated with the experimented main model for female students with Body mass index "prior obesity 1" is 132 beats/min. Maximum pulse frequency is 140 beats/min, and the minimum one - 118 beats/min.

Table 3. *Model programme for female students with BMI "prior obesity 2" (BMI from 27.5 to 29,99)*

PREPARATORY MODELS				
FIRST MODEL: Durability – 8 min, of which 1 min for stationary running and 7 min for stationary walking.				
4 min walking	1 min running +3 min walking			
SECOND MODEL: Durability – 12 min, of which 1 min for stationary running and 10 min stationary walking.				
4 min walking	1 min running +3 min walking	4 min walking		
THIRD MODEL: Durability – 12 min, of which 2 min for stationary running and 10 min stationary walking				
4 min walking	1 min running +1 min walking +1 min running +1 min walking	4 min walking		
FOURTH MODEL: Durability – 16min, of which 4 min for stationary running and 12 min stationary walking				
4 min walking	1 min running +1 min walking +1 min running +1 min walking	4 min walking	1 min running +1 min walking +1 min running +1 min walking	
MAIN MODEL: Durability – 20 min, of which 4 min for stationary running and 16 min stationary walking. Music – 130 – 140 beats/min				
4 min walking	**1 min running +1 min walking +1 min running +1 min walking**	**4 min walking**	**1 min running +1 min walking +1 min running +1 min walking**	**4 min walking**

Average pulse frequency of the investigated individuals with the experimented main model with Body mass index "prior obesity 2" is 132 beats/min. Maximum frequency is 144 beats/min, and the minimum one - 128 beats/min.

Table 4. *Model programme for female students with BMI "obesity I degree" (BMI from 30 to 34,99)*

PREPARATORY MODELS				
FIRST MODEL: Durability – 8 min, of which 1 min for stationary running and 7 min for stationary walking.				
4 min walking	+30 s running +90 s walking +30 s running +90 s walking			
SECOND MODEL: Durability – 12 min, of which 1 min for stationary running and 9 min stationary walking.				
4 min walking	+30 s running +90 s walking +30 s running +90 s walking	4 min walking		
THIRD MODEL: Durability – 16 min, of which 3 min for stationary running and 13 min stationary walking				
4 min walking	+30 s running +30 s walking +30 s running +30 s walking +30 s running +30 s walking +30 s running +30 s walking	4 min walking	+30 s running +90 s walking +30 s running +90 s walking	
FOURTH MODEL: Durability – 16 min, of which 4 min for stationary running and 12 min stationary walking				
4 min walking	+30 s running +30 s walking +30 s running +30 s walking +30 s running +30 s walking +30 s running +30 s walking	4 min walking	+30 s running +30 s walking +30 s running +30 s walking +30 s running +30 s walking +30 s running +30 s walking	
MAIN MODEL: Durability – 20 min, of which 4 min for stationary running and 16 min stationary walking. Music – 130 – 140 beats/min				
4 min walking	+30 s running +30 s walking +30 s running +30 s walking +30 s running +30 s walking +30 s running +30 s walking	**4 min walking**	+30 s running +30 s walking +30 s running +30 s walking +30 s running +30 s walking +30 s running +30 s walking	**4 min walking**

Average pulse frequency of the investigated individuals with the experimented main model with Body mass index "obesity I degree" is 135 beats/min. Maximum frequency is 148 beats/min, and the minimum one - 126 beats/min.

Table 5. *Model programme for female students with Body mass index "obesity II and III degree" (BMI from 30 to 34,99 and BMI from 35 to 39,99).*

PREPARATORY MODELS				
FIRST MODEL: Durability – 4 min for stationary walking				
4 min walking				
SECOND MODEL: Durability – 4 min for stationary walking; 4 min faster walking				
4 min walking	4 min faster walking			
THIRD MODEL: Durability – 12 min, of which 8 min stationary walking; 4 min faster walking				
4 min walking	4 min faster walking	4 min walking		
FOURTH MODEL: Durability – 16 min, of which 8 min for stationary walking; 8 min faster walking				
4 min walking	4 min faster walking	4 min walking	4 min faster walking	
MAIN MODEL: Durability – 20 min, of which 12 min for stationary running and 8 min faster walking . Music – 130 – 140 beats/min				
4 min walking	**4 min faster walking**	**4 min walking**	**4 min faster walking**	**4 min walking**

Average pulse frequency of the investigated individuals with the experimented main model with Body mass index "obesity II degree" is 138 beats/min. Maximum frequency is 148 beats/min, and the minimum one - 128 beats/min.

Average pulse frequency of the investigated individuals with the experimented main model with Body mass index "obesity III degree" is 145 beats/min. Maximum frequency is 148 beats/min, and the minimum one - 118 beats/min.

CONCLUSIONS

Results from the investigation carried out give us ground to make the following conclusions:

1. The developed model programmes with stationary walking and running give the trainees the possibility for a choice of a work programme, according to their Body mass index, depending on the preparation and their preferences.
2. Model programmes with stationary walking and running contribute for overcoming the problems of the sedentary way of life. They could be successfully applied for overcoming the over-weight and obesity.
3. The limits established of the average pulse frequency during the trainings with the main models - 110-150 beats/min are within the range of requirements set.

In conclusion, it could be noted that the observing of the directions for trainings with stationary walking and running, on the model programmes is a precondition for achievement of very good effects, connected with overcoming of sedentary way of life and maintaining of Body mass at the norm, not only with female students, but with women at the age between 18 and 33 years.

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