

Adaptation Changes of Pulse Frequency in Callanetics Study With Female Students

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ABSTRACT

The contemporary way of life, especially of the young generation, including the students, predisposes to lower and lower motor activity. According to the experts, the systematical, methodically correctly organized trainings with physical exercises and sports are highly recommended as prevention. The preference of young girls for the new fitness subjects, including the callanetics, provoked us to introduce it as an elective-mandatory subject for the female students in the Insurance and Finances Higher School - Sofia. These new subjects gain bigger and bigger popularity, but we, as experts on physical culture and sports, consider the same not only as modern sport studies/trainings, but we search for their influence / impact on the physical and psychic state of human being, we seek the perfection of the methods and the ways of influence. The research aims a survey of the adaptation changes of the pulse frequency in callanetics training with female students. Changes in the pulse frequency in the period of the survey show that callanetics program prepared lead to changes, speaking about a certain health and training effect with the female students under investigation.

Keywords: *pulse frequency, callanetics, adaptation changes*

INTRODUCTION

The contemporary way of life, especially of the young generation, including the students, predisposes to lower and lower motor activity. According to the experts, the systematical, methodically correctly organized trainings with physical exercises and sports are highly recommended as prevention. Motor activity develops the muscle-motor system and influences favorably the functional state of the organism. The sports hours/classes give the young people a possibility to speed up the processes of adaptation, professionalizing and labor realization (Basse, 1992).

Experts in the higher schools look for more actual varieties for optimization of the educational programs on sports, diversifying the training process with aerobics, callanetics, "Quick mini-step callanetics (Gallinetics)" and others (Дончева at all, 2009; Дякова, 2007; Пеева & Златарева, 1991; Дякова at all, 2007; Mineva, 2011).

The preference of young girls for the new fitness subjects, including the callanetics, provoked us to introduce it as an elective-mandatory subject for the female students in the Insurance and Finances Higher School – Sofia. These new subjects gain bigger and bigger popularity, but we, as experts on physical culture and sports, consider the same not only as modern sport studies/trainings, but we search for their influence / impact on the physical and psychic state of human being, we seek the perfection of the methods and the ways of influence (Минева & Сампровалаки, 2004; Пеева & Златарева, 1991; Mineva, 2011).

The research aims a survey of the adaptation changes of the pulse frequency in callanetics training with female students.

The above-said has defined the following tasks of the current survey:

1. To define the attitude of female students towards the sport trainings, callanetics included.
2. To provide the necessary quantitative information.
3. To follow the dynamics of the pulse frequency in the specific trainings/studies during the pressure and in the period of recovering.

For settlement of the tasks set, we have used the following mathematical-statistic instruments: literature survey, pedagogical observation, inquiry method, pulse-metrics, comparative analysis, graphic analysis (Гигова, 2000).

THE STUDY

For conducting the inquiry, anonymous inquiry of 11 questions has been developed.

For measuring the pulse, we have used the pulse-metrics method during the organized trainings, recording, memorizing and reproducing the values of the pulse frequency in several periods of the study: in the beginning, after warming up, at the moment of utmost pressure, in the end of the training, and after 2 minutes of recovering.

Forty female students from 1st and 2nd year have been included in the survey, all trends of the Insurance and Finances Higher School, of average age – 25,5 years. The persons under the survey have been engaged with the callanetics complex two times weekly, once organized and once independently during the educational year 2010/2011.

The complex of exercises developed is of total durability 60 min, including warming up 10 min (6-7 min general-developing exercises and 3 min aerobics, using several basic steps, including the arms), exercises for sciatic muscles, hips and thighs – 20 min, exercises for the upper and lower part of the abdominal muscles – 10 min, exercises for the lower limbs – 10 min and exercise for stretching – 5 min. The trainings are accompanied by music, suitable on intensity for the aerobic part and pleasant for emotion and stimulation of the activity of the female students. What is important in the training is the observation of several requirements:

- The exercises in the beginning to be studied precisely;
- To observe taking the initial/starting position;
- The precise fulfillment;
- The proper breathing.

FINDINGS

The analysis of the data from the conducted inquiry shows that the callanetics training is liked by all female students. The biggest is the percentage of the inquired (60%) with the opinion that they play for health, 24% - for decreasing the weight, 8% - out of curiosity and remaining 8% indicate other reasons – to keep fit.

Of special importance for us is the opinion of the female students about the influence of callanetics. It is established that 34% feel stimulated after the training, 25% - psychically relieved, 15% feel satisfaction with the motor activity. Equal percentage (5%) for the ones replied, that callanetics brings them aesthetical satisfaction, increases their self-confidence and that they deal with something modern and actual. A part of the female students inquired (11%) indicate that they feel tired after the training.

Curious is the result from the answers to the question: "Do you prefer callanetics to other sport classes?". Most of them – 80% are for the callanetics, remaining 20% of the female students prefer swimming as another sport.

Important thing for the inquired is the including of music in such type of training – 88%.

And to the last question – how do they find the callanetics – a modern phenomenon, or a training with future? Definitely - 100% believe in its future, that gives us optimism in our work.

It is well known the relation between the pulse frequency and the power of work in the range 55-70% of the maximum power (Душков at all, 1986). As an index of the intensity of the effort, the pulse frequency allows through it purposefully to control the value of the pressure. In callanetics, the amount of the pressure is changed through the increase or decrease of: number of repetitions at fulfillment of the exercise, time for rest, amplitude of body

movement, or through change of the initial / starting position.

On Table 1, the average values of the pulse frequency are presented in the periods defined by us for measurement, of each one of the ten trainings, under the survey.

The results received show that the female students start callanetics training with comparatively higher pulse than the normal one for the age. The average values are between 87-95 beats/min in the beginning of the survey and 84-94 beats/min – at the end of the survey (after 2 min recovery). This moderate tachycardia could be explained with some secondary/side factors, such as the everyday pressure in the educational activity, reaching the sports center, the emotion from the forthcoming sport training, etc. What impresses is the fact that the dynamics of the initial pulse for the period of the survey does not characterize with substantial fluctuations (Fig. 1).

Table 1: Average values of the pulse frequency in the periods defined for measurement

Order of training	Average values (beats/min)				
	In the beginning	after warming up	Utmost pressure	In the end of training	after 2 min
1	95	122	125	115	94
2	90	121	130	108	94
3	92	123	132	109	93
4	87	119	130	107	91
5	91	119	131	103	90
6	92	120	128	102	88
7	90	115	128	102	89
8	89	114	131	106	91
9	89	113	131	105	84
10	88	119	127	100	88
Xmin.	87	113	125	100	84
Xmax.	95	123	132	115	94

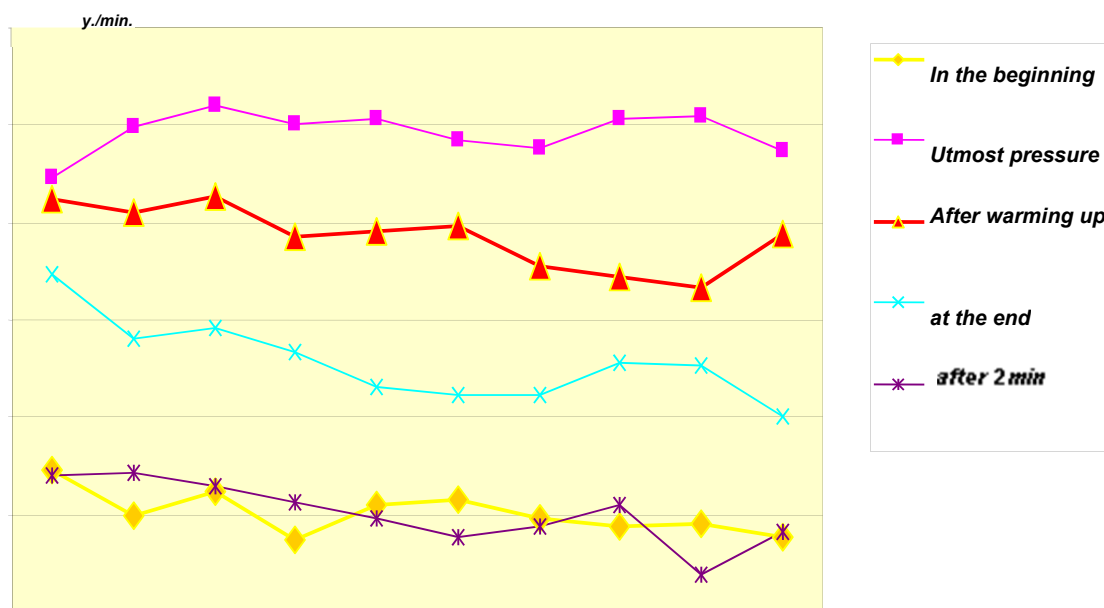
After finishing the exercises for warming up and 3 min aerobics, through which we aim improvement of the mood, increasing the working capacity of the cardio-vessels and respiratory / breathing systems, preparation of the motor apparatus for the following bigger pressure, what is observed is a substantial increasing of the pulse, averagely by 29 beats/min in comparison to the initial one. The dynamics of the pulse frequency after the warming up does not characterize with clearly manifested fluctuations (Fig. 1), the difference being only 10 beats/min ($X_{max}-X_{min}$).

In the callanetics training, the curve of the pulse, measured in the period “utmost pressure” speaks about an achievement of an optimum combination between the types of exercises, their volume and number of repetitions. So, in this period the pressure applied acquires an optimum character, and the pulse frequency is of average value 129 beats/min. It is established by the experts in this area that the minimum pulse frequency giving a training effect is 134 beats/ min for 17-25 years old persons.

The pulse “at the end” of the training decreases to 100-115 beats/min and clearer fluctuations are observed in its curve, the difference here being 14 beats/min ($X_{max}-X_{min}$).

We could also say that the high pulse in the first trainings is defined not only by the week motor preparation of the trainees, but by the pulse reaction, related to the fulfillment of something new and unknown for some of the female students.

Figure 1. Dynamics of the pulse frequency at fulfillment of callanetics complex for the period of the survey



CONCLUSIONS

1. Analysis of the data from the conducted inquiry shows that callanetics is preferred by the female students, having a psychic-emotional relieving and physical pressure effect to most of them.
2. Changes in the pulse frequency in the period of the survey show that callanetics program prepared lead to changes, speaking about a certain health and training effect with the female students under investigation.
3. We recommend at systematic, organized and independent callanetics trainings to look for constant enrichment of complexes, for increasing of their impact on the organism of the trainees, with priority of exercises influencing the cardio-respiratory system.

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