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THE IMPLEMENTATION OF METHODS USED IN ATHELTISM WITH THE PURPOSE OF DEVELOPING THE RESISTANCE DURING THE PHYSICAL DEVELOPMENT PROGRAM OF STUDENTS

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Abstract

Resistance is conditioned to a large extent by the psychological factors that play a stimulating and recovering role of biological processes that "supervise" this quality. Among these we mention in the first place the motivation complex and interests one. Therefore development of this quality among female students that are not athletes, becomes a difficult problem, the teacher's role is very important, his teaching skills and in particular by the selection means and the methods he uses. Knowing that the running time is not accepted by the students, this study tried to verify a hypothesis that by the implementation of certain methods used in athleticism to non-athlete students they can improve the performances from the semester control sample, running of 800 meters. The experiment was conducted on a group of 20 students, known methods and methodical procedures used for their efficacy in the scientific inquiry.

Conclusions: The working hypothesis from which we started this experiment and the experiment results analysis gives us the right to say that this was confirmed, fact proved by the performance values obtained in the final testing that were higher than the original.

Key words: methods, implementation, students, resistance.

Introduction

Strength or endurance is a motor quality that can be developed on almost any age on almost any age level with the condition to take into account the peculiarities of age, somatic-functional, psychological, sex, health status, etc.. It is known that resistance is a conditioned capacity that is based on metabolic efficiency of muscles and systems, and limiting factors are related to available energy in muscle and the mechanisms that regulate them. Resistance is the ability of the psychophysical organism to cope with fatigue specific to the work performed.

So we can say that resistance is the ability of a subject to make an effort without causing fatigue, or exceed (overcome) this phenomenon. Dragnea A. (2002) considered that the development of resistance level is reflected in high functional capacity of the nervous systems, respiratory, cardiovascular, metabolism, and the coordination capacity of the remaining systems and systems found in the body human. In the specialty literature we find different classifications of the forms of manifestation of this quality.

Resistance can occur in the forms: general strength, specific strength, anaerobic strength and aerobic strength. Ardelean T. (1982) presents the following manifestation forms, in athleticism, of resistance: resistance in speed regime or under the explosive force, cardiovascular strength and resistance with energetic character. Differentiates the forms of manifestation depending on the type of effort, so we meet: general resistance, regional resistance and local resistance, and resistance anaerobic and aerobic strength.

We believ that from a motor point of view, resistance has several forms: local, regional and global, in terms of methodology, can be: general and special, and physiologically, may be: aerobic resistance and anaerobic resistance. General strength, specific strength, local strength and aerobic and anaerobic resistance. C. Bota (2000), presents, quoting R. Manno (1996), the following classification of forms of resistance: resistance - speed (from 8-10 sec. up to 45 sec.), short resistance (45 s to 2 min.), medium resistance (2 min. to 10 min.) long resistance I (10 min. to 35 min.), long resistance II (35 min. to 90 min.), long-III resistance (longer than 90 min.).

Resistance development is conditioned by a series of factors:

- resistance capacity
- type of muscles fibers contained in the activity;
- energy resources;
- enzymatic activity and hormonal mechanisms and adjusting cardiovascular capacity; peripheral capillarization and adjustment; blood composition;
- long capacity,
- volitional processed (boldness, perseverance),
- motivational processes.

Resistance is also conditioned to a large extent by psychological factors that play a stimulating role in the biological processes used to "supervise" the quality of this condition.

Emotional states can also cause changes in the

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resistance capacity. A relatively strong emotion may cause a reaction throughout the neuro-hormonal activationof the entire adreno-sympathetic system. Volitional processes are equally involved in the resistance capacity of the individual. It is important to recognize the existence of real fatigue of the body, of muscle, due to energy depletion substances or wear substances accumulation. In this case, it is not indicated that any increase in fatigue life to be resolved psychically, by fighting the feeling of fatigue.

The motivational complex and the one of interests is the most important psychological factor. It takes a strong motivation for some intense and long-term efforts to be supported. Therefore in developing this qualities among non-athlete female students, becomes a difficult problem, the teacher's role is very important, that his teaching skills and especially the selection of means and methods that it uses. Educating the capability (quality) of motor condition is not only by running, but also by other specific means.

Knowing that the running time is not accepted by the students, this study tried to verify a hypothesis that the implementation of methods used in sports training to non-athletic students can improve their performance in the control sample semester. The most common methods used in sports training for development of resistance are uniform efforts method (continuous), variables efforts method, interval training method or split.

The method of uniform efforts (continuous), is widely used in preparing beginners, especially early in the preparatory periods (basic training), mainly for the development of autonomic control systems that optimize the capture and transport activity of oxygen. The most common type is the duration running exercise regime that increases more and more the vegetative top level.

This type of effort, held close to the critical intensity, increases aerobic possibilities: thus, at beginners it is recommended a tempo equivalent to 6 to 6.5 min. / 1000 m and a heart rate of 140-150 pulse / min. while trained athletes will cross the 1000 m from 3.5 to 4 minutes. The duration running priority calls the slow fibers (red) and their oxidative enzyme suppressing the activity of fast glycolytic fibers. It is considered that maintaining a tempo run in 70-75% of VO2 max. does not contribute to the increase of aerobic capacity, but ensures that it is at that level.

During an ongoing effort to beginners, it is recommended to be between 10-15 minutes, and the athletes trained up to one hour, after which there is an overload of the cardiovascular and respiratory systems, the oxygen consumption decreases, and also the effect of the method used.

It is estimated that this method can be used by performance athletes to *return - oxygenation* after heavier training in the first period of preparation or for will develop. This method can be used to improve aerobic exercise capacity when using a heart rate of 170-180 beats / minute. Aerobic-anaerobic zone transfer (which is a high intensity exercise) may be made only by athletes with good resistance. Assay values are recommended to be changed after 4-6 weeks of use, setting new values for the next mesocycle. It is recommended that the respiratory rate does not increase from rest to exercise, more than twice.

Variables efforts method is based on altering the intensity and tempo of work in different exercises. Frequently used is the run, but the method applies to other specific means. The primary mean is running on the varied ground with repeated changes of intensity, especially due to terrain profile. It creates this type of effort, an imbalance between oxygen need and ways of ensuring it, for example by running the uphill portions. This oxygen debt determines the need for air and feeling of fatigue to be defeated.

Therefore, it is recommended that, after a portion of the hill, to follow moving downhill, aiming to ease the crossing unpleasant moments. Because dosing is relatively difficult and the times of peak loads are few and inconsistent, this system is used restrictively to athletes. It is used to educate beginners will, so we can try this method successfully for female students undergoing this test. *The method of training with intervals or split* is used in many branches of sports with a cyclical character and in sports games. The basic principle of this method consists in a repetition due to incomplete body rebuilt after the previous repetition.

This mode enhances the ability energic-genesis lactacyd, producing metabolic acidosis by medium and submaximal lactate formation in the absence of oxygen. Practical methodology of application has as aim to modify the duration of efforts, rest interval, the tempo of work, the number of repetitions and actions of the subject during breaks. Some authors believe that the interval training is applied with an extensive version and an intensive one.

The extensive version is characterized by a high volume and low intensity of repeated and intensive version, conversely, low volume, high demand. The training in the intensive variant requests an oxygen debt between 90% and 30% of maximum force of isometric contraction, acting mainly on white muscle fibers, while red muscle fibers require extensive version (priority).

Both procedures require carbohydrate metabolism. Extensive version is used in training for long-term development efforts, while intensive form, for the prevailing of anaerobic.

Breaks between repetitions will be set to 30-90 seconds, during which allows recovery heart rate to 120-130 beats / minute, at which time a new iteration begins. It works in few series, 2-3 in number,

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composed of 4-3 repetitions (the lesson), because a higher volume leads to depletion of glycogen.

Experts consider that the break must be less than from a repetition to another, because the concentration of lactate in the blood increase after a few minutes after the start of the repetition, and the maximum is reached about simultaneously with the completion of work. We mention that the duration of breaks depends on the duration and intensity of each repetition, Ardelean T., (1982).

We did the brief overview of these methods in order to motivate the choosing of the methods and processes of sport performance that I thought that we can successfully use in our experiment and their implementation in the development of resistance in female students physical development program.

Work hypothesis

In our study, we developed the hypothesis that the implementation of certain development methods of the motor resistance capacity, usually used with success in sport performance, with the condition to respect and adapt the peculiarities of age, sex and sport specific activity to which currently female students participate, weekly physical education module that can improve their performance to control the tasks held quarterly.

Experiment organization and development

Description of experiment: The study was done on a group of 20 students, aged between 19 and 23 years, divided into 2 groups, students at the Faculty of Economic Sciences.

The experiment was conducted during 2009-2010, over 28 modules, each module having a duration of 100 minutes. The sports task that was behind this experiment was running resistance on 800 meters. In this experiment there were two tests, an initial one – at the beginning of the academic year (October 2009) and a final one - at the end of the academic year (May 2010).

Preparation was done according to the particularities of age, sex, health status and not least to keep in mind the weight of female students included in this experiment.

Research methods:

I used my scientific approach following research techniques and methods: observation, measurement and recording method, method study bibliographic, statistical and mathematical method, graphical method and experimental method.

Statistical data processing aimed to the following indicators: weighted arithmetic mean, the difference between mean, median, upper, lower limit, quartiles, standard deviation (S), coefficient of variation (CV). I chose a bunch of methodological procedures that we used during physical education classes that had as main objective the development of general resistance: uniform effort procedure, the procedure of repeated efforts, the process o variable and progressive efforts and sports games (volleyball, basketball and handball).

With the help of uniform process efforts intensity has remained constant throughout the practice of female students, in exchange the volume grew in the same lesson or from a lesson to another, progressively, according to the plan (ie,. Distance running from 300m to 1000m, 1200m or even changes in relation to time, by increasing running duration from 2 to 10 minutes).

Also, through the process of repeated efforts intensity remained constant throughout exercising but made the same unit of effort (distance) several times, repeating the effort standard pattern (eg 3x400 m).

Movement games, sports games have lacked the schedule were used to develop general strength, intensity and gradually increasing the time devoted to sports.

The Fartlek - a means of developing resistance to commonly used in sports performance, especially in athletics during periods of accumulation, general physical preparation, its execution time increased from 5 minutes to 15 minutes.

Active break was chosen as a complementary method of recovery, expressed walking, breathing movements, recovery duration varies depending on the value of heart rate values were higher than the rest. The average duration of breaks was approximately 90 sec. - 2 min. to 3 min., the heart rate is around the threshold of 130 bpm. Examples of action systems that were used in the experiment:

- Alternating the brisk walking with the running in uniform tempo (2x 6 min, break 1-3 min).
- Slow rim in uniform tempo (8-10 min.).
- Repeated run (3-4 x 400m).
- The Fartek 10-15 min
- Sport games
- Relay
- Applied tracks (jumps, weight transport, climbing up the fixed stairs, walking in equilibrium) – 5-6 repetitions connected nu slight run.

To achieve the objective of developing general strength, I helped by traditional means (used in sports training), all this means respecting pedagogical principles aimed at educating quality motor resistance.

Obtained results

Statistical data and charts from records, processing the data obtained after completion of the experiment described above, are found in Table 1, where values of the statistical calculations of initial and final performance of resistance and Figure 1, where averages are presented graphically developments in performance sample that have evolved resistance to students who have been subjected to experiment.

From these results the effectiveness of the

methods we implemented, reflected in increasing the capacity of resistance and consequently the progress reflected in performance that students have achieved the final testing.

Conclusions

The working hypothesis from which we started this experiment and the experiment results analysis gives us the right to say that this was confirmed, as evidenced by performance values obtained in the final testing that were higher than the original.

After interpreting the results, their analysis and synthesis, we consider necessary to make the following conclusions.

- Methods of developing resistance psychomotor ability, used in sport performance, namely athletics, provided much needed to be adapted to the peculiarities of age, gender, somatic development and physical education activities specific to female students, may lead to improve overall strength.
- We support the idea that the development of this quality is welcomed also in this age segment, because they know that there is a tendency to towards a sedentary life.
- We believe that an important role in meeting this objective it is a motivational factor, especially when subjects, in our case are non-athlete students.
- Sports, dance, relays and applied tracks are means approved by students and often used in educating the general resistance, but should not be neglected the methodological procedures established, verified, used in athletics, respectively in semi fond samples, background.
- Resistance is a psychomotor skill that can be improved, over its development we can act being able to achieve superior results in old age.
- The development of this quality does not require exceptional material facilities.
- It is imperative to respect this quality in psychomotor development continuity in the methods proven effective, often causing the continuity of progress.

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Table 1. *Table with the calculated statistical values of the initial and final parameters*

	INITIAL TESTING	FINAL TESTING
No of tested students	20	20
Arithmetic mean (min.)	3,43	3, 24
Means difference (sec.)	-	14,1
Superior limit (max.)	4,27	4,00
Inferior limit (min)	3,38	3,20
Lower Quartile (min)	3,41	3,35
Median (min)	3,51	3,38
Upper Quartile (min.)	3,58	3,44
Standard deviation	14,08	10,08
Coefficient of variability	6,02	4,89
Amplitude (sec.)	50	42

Figure 2. *The evolution of the mean results at the resistance tasks in the initial and final tests*