# MODALITIES FOR THE DEVELOPMENT OF MOTRIC CAPACITY OF YOUNG BOXERS THROUGH ATHLETICS SPECIFIC MEANS 

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ABSTRACT: Continuous modernization of teaching physical education and sports and of performance sports makes it necessary to focus on the ways, methods and means used in this activity, on the technology used, on the forms of organization, both on the workout in the first place, as well as on the relation of communion between the coach and the young athletes.
KEYWORDS:boxing, workout, physical development.

## Introduction

Pugilism, millennia-old competition, knows nowadays a development in all respects, due to the fact that it is practiced in many countries all over the world.
Performance sport proposes to make the athletes to practice with a certain skill the basic sports and activities they have chosen. The development of motoric skills and sports capacities must be carried out taking into account not only their momentary needs but also their future activities. The conditions in which the training process is carried out must motivate the athletes and must arouse their desire to improve themselves [2,3,5,12,13].
Boxing is a sport so popular and it adapts easily to the lively temperament of youth, having a high content of exercises which are carried out on scientific bases [11,16].
The athlete needs guidance and management activity from the coach, in order to learn the secrets of the sport, but also in order to overcome the difficulties encountered during his or her formation on the way to athletic performance [1.4].
In the process of physical training of athletes it must be taken into account the relationship between the motoric qualities and the motoric skills and/or abilities, as in the performance of an exercise both the motoric skills and motoric quality are present.

## Purpose of the paper.

To design a training model aimed at trying to eliminate, as far as possible, the hazard from the training of young pugilists. This model must allow to plan and to accurately measure the loads and its efficiency on the performance.

## Hypothesis of the paper

We started the present study from the following working hypothesis:

Great performance at international level in boxing lead to a good orientation of the training methodology at the beginners level, by using exercises specific to athletics also for the development of the motoric capacity.

## Tasks of the paper

The tasks of the research in relation to the objective pursued were:

- to know the initial level of development, and of motoric qualities of the athletes covered by the experiment;
- to design and to schedule the means, i.e. the driving systems;
- to use the means specific to athletics in the training lessons;
- to evaluate the efficiency of the applied studies and to draw conclusions and proposals derived from the research.


## The research methods used.

- analysis of specialty scientific and methodological literature
- comparative study;
- statistical and mathematical methods of data processing;
- graphical and tabular method.


## THEORETICAL FOUNDATION OF THE PAPER

Motoricity expresses a global feature, which includes processes and mechanisms by which the human body or its segments move, by detaching itself from a substrate by muscular contractions, or it maintains a certain posture.
The concept of capacity comes from the Latin "capacitas" and it refers to the ability of individuals to succeed in carrying out a task or a profession [7].
The motoric capacity comprises:

- stable components: abilities, motoric qualities, motoric skills, operational structures, knowledge, experiences;
- state components: motivation, emotional states, which may increase, decrease or block the expression of motoric capacity.
The motoric capacity is a whole of natural and acquired motoric possibilities through which
efforts can be made, varying in structure and dosage [4,6,8,9,10,14,15,17].
In the anglo-saxon literature, the concept of motoric capacity has as equivalent the term "fitness".


Fig. 1 Components of fitness (Dragnea A. and Bota A, 1999, p. 223)

The methodological orientation of Romanian Federation of Boxing can be applied also to junior boxers, but until now the federation hasn't made any express recommendation concerning the children $[11,16]$.
Creating mini-pugilism involves a great responsibility for running it in total safety for kids who practice it. This is why the R.F.B. must lay down the guidelines of this delicate process. For this purpose we share our experience in training young children of puberty age, 12-13 years old.
In summary the training process has the following sequence:

- During the first 2-3 months (depending on their ability to learn) we perform technical training using individual study and later using boxing with shadows;
- Then, after 4-5 months of learning and repetitions using the wall bag and the boxing bag, we pass to lessons with boxing gloves (for 2-3 months);
- during the following 2-3 months, study in pairs;
- conditioned fight completes the training as the ultimate and most advanced means of technical-tactical training for children.
free fight until 14 years of age, including, is contraindicated, except for, of course, exceptional circumstances.


## MEANS FOR THE DEVELOPMENT OF MOTORIC QUALITIES USED IN RESEARCH

## Tasks:

1. Development of speed in all of its forms of manifestation, as speed remains a top quality regardless of the presumptive specialization trial;
2. Development of dynamic force and of detente;
3. Development of endurance under aerobic, local and mixed conditions.

## Means used:

1. Running with standing start on $10-60 \mathrm{~m}$, intensity of 95-100 \%;
2. Running with knee start on $10-50 \mathrm{~m}$, intensity 95-100 \%;
3. Running with launched start $10-30 \mathrm{~m}, 95-$ $100 \%$;
4. Running with ankle play $10-30 \mathrm{~m}, 95-100$ \%;
5. Running with knees up 5-6 seconds, 95-100 \%;
6. Running downhill $20-40 \mathrm{~m}$ (slope $3-5^{\circ}$ );
7. Running with handicap, in competition conditions, on 40-60 m;
8. Various speed exercises: attention, responsiveness to various signals;
9. Puts with and without impetus, carried out with easier objects, compatible with an explosive-type effort;
10. Relay on 30-60 m, 95-100 \%;
11. Alterations of brisk walk and moderate run $10-15$ minutes;
12. Run for 10-20 minutes with an intensity of $4,40+/-10$ sec., reference heart rate after effort 160-170 bpm.
13. Run in various land $15-20$ minutes;
14. Accelerated run on $80-120 \mathrm{~m}$, repetitions at intensities of $80-90 \%$, pause for $5-7 \mathrm{~min}$.;
15. Repeated run in even tempo on distances of $150-600 \mathrm{~m}$, with pause $5-7 \mathrm{~min}$;
16. Run with ankles play with pushing resisting partner 20-30 min.;
17. Run with ankles play with weights (sand sacks) on $10-20 \mathrm{~m}$, uphill or upstairs 10-20 min;
18. Run with knees up uphill or upstairs 1020 min , with weights $10-20 \mathrm{~min}$;
19. Raise on toes from sitting, with weights;
20. Bouncing walk with weights ( $5-10 \mathrm{~kg}$ ), on $15-20 \mathrm{~m}$. Bouncing walk uphill (upstairs), $3-5^{\circ}$;
21. Repeated high jumps on one foot and on both feet uphill or in the sand.
22. Jumps like a ball, various jumping on the spot and on the move, on and from obstacles, over obstacles;
23. Combinations of bouncing steps and jumping steps;
24. Jumps with jump rope, jumps on one foot and on both feet over fences;
25. Semi-genuflections with vertical detachment;
26. Exercises for arms: pulls, bends, stretches, climbs;
27. Exercises for developing the strength of stomach and back muscles.
28. Exercises of throwing the $2-4 \mathrm{~kg}$ medicine ball.

## PROCESSING AND INTERPRETATION OF THE DATA

A correct Interpretation of the results obtained by subjects of the research represents the most important step in assessing the efficiency of the procedures and methods specific to athletics used during the sports activity.
We note that the material shown, the figures representing the performance, they have a particular character determined by the conditions specific to the sport club where the experiment was conducted and cannot be generalized, but taken as a small contribution to the development of the motoric capacity to a group of beginners boxers.

Speed running - 50 m standing start table no. 1

| Nume şi prenume | B | P | O | $\begin{aligned} & 3 \\ & 3 \\ & 3 \end{aligned}$ | O | + | $\xrightarrow[-1]{9}$ |  | P! | $\xrightarrow{Z}$ |  | X | As | CV |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| T1 | 7.7 | 7.9 | 8.0 | 8.1 | 8.2 | 8.2 | 8.1 | 7.8 | 7.9 | 7.8 | 7.7 | 7.94 | 0.18 | 2.26 |
| T2 | 7.5 | 7.6 | 7.8 | 7.7 | 7.8 | 7.7 | 7.9 | 7.6 | 7.5 | 7.6 | 7.5 | 7.64 | 0.14 | 1.83 |
| Dif. | 0.2 | 0.3 | 0.2 | 0.4 | 0.4 | 0.5 | 0.2 | 0.2 | 0.4 | 0.2 | 0.2 | 0.30 | 0.04 | 0.43 |

The arithmetic mean decreased from initial testing to final testing, the difference being of 0.30 sec .
The standard deviation also shows low values at the final testing in comparison with the initial testing and the dispersion is reduced.
The coefficient of variability $(\mathrm{Cv})$ at T 1 has a value of $2.26 \%$ and at the final testing it drops to $1.83 \%$. For this test it shows a low dispersion, a high homogeneity.

Resistance running - 1000 m table no. 2

| Nume şi prenume |  | + | $\stackrel{\square}{\square}$ | $\begin{aligned} & 0 \\ & \underset{3}{3} \end{aligned}$ | ? |  | $\stackrel{Q}{\oplus}$ | $\because$ | $\begin{aligned} & 3 \\ & \stackrel{3}{3} \\ & \end{aligned}$ | $\xrightarrow[C]{Z}$ | $\stackrel{H}{9}$ | X | As | CV |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| T1 | $\underset{\sim}{\dot{\omega}}$ | $\stackrel{H}{\ddot{U}_{1}}$ | $\begin{aligned} & \stackrel{+}{\hat{t}} \end{aligned}$ | $\begin{aligned} & \stackrel{+}{+} \\ & \stackrel{y}{*} \end{aligned}$ | Hi | $\stackrel{+}{\underset{~}{+}}$ | $\underset{\sim}{\dot{\omega}}$ | $\stackrel{+}{ \pm}$ |  | $\stackrel{\stackrel{i}{\ddot{i}}}{+}$ | $\begin{aligned} & \stackrel{+}{+} \\ & \stackrel{y}{*} \end{aligned}$ | $\stackrel{\text { ij }}{\dot{U}}$ | $\begin{aligned} & u \\ & i \\ & i \end{aligned}$ | $\stackrel{\square}{6}$ |
| T2 | $\stackrel{\underset{\sim}{N}}{ }$ | 芯 | $\stackrel{+}{\dot{U}}$ | $\underset{\stackrel{\rightharpoonup}{\dot{\omega}}}{ }$ | $\stackrel{+}{\ddot{0}}$ | 芯 | + | $\stackrel{A}{\stackrel{~}{i}}$ | A |  | $\underset{\substack{\dot{\sim} \\ \hline \\ \hline}}{ }$ | P | $\begin{aligned} & \vec{U} \\ & \underset{\sim}{n} \end{aligned}$ | $\stackrel{N}{\infty}$ |
| Dif. | $\stackrel{0}{\infty}$ | $\stackrel{0}{\infty}$ | $\circ$ | Bo | $0$ | N | $\stackrel{0}{3}$ | $\begin{aligned} & \text { O} \\ & \text { Non } \end{aligned}$ | $0$ | $0$ | O- | $\stackrel{0}{\mathrm{~N}}$ |  | $\stackrel{0}{0}$ |

The arithmetic mean decreased, the values recorded at $\mathrm{T} 2(4: 25)$, can be found at a higher level than those at T-1 (4:37), athletes achieved visible progress between 6 sec and 29 sec .
The difference between the average values between T-1 and T-2 is equal to 0.12 sec .
The coefficient of variability in T-2 has a value 2.84 times greater than the value recorded at T-1, 1.99. For this test it shows a low dispersion, thus a great homogeneity.

The range of significance of the average of the team of athletes is found between $\pm 5.53$ (T1) and $\pm 7.54$ (T2).

Standing long jump Table no. 3

| Nume şi prenume | $\stackrel{>}{+}$ | $\xrightarrow{\square}$ | $\stackrel{\square}{\square}$ | 3 | \% |  | $\xrightarrow{\text { - }}$ | $\because$ | ? | $\underset{\sim}{Z}$ | -1 | X | As | CV |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| T1 | $\stackrel{\square}{\square}$ | $\stackrel{\rightharpoonup}{\mathrm{u}}$ | $\stackrel{\square}{\text { E }}$ | $\stackrel{5}{6}$ | ت | $\stackrel{\circ}{\circ}$ | $\stackrel{\square}{\text { ¢ }}$ | F | $\stackrel{\ddot{u}}{4}$ | $\stackrel{\rightharpoonup}{6}$ | $\stackrel{\sim}{\mathrm{U}}$ | $\stackrel{\square}{8}$ | P | $\stackrel{\infty}{4}$ |
| T2 | $\stackrel{-}{\sim}$ | 5 | $\stackrel{\sim}{\infty}$ | $\stackrel{5}{0}$ | $\stackrel{\square}{\circ}$ | $\begin{aligned} & \text { N } \\ & \text { O} \end{aligned}$ | $\stackrel{\rightharpoonup}{\square}$ | $\stackrel{\rightharpoonup}{6}$ | $\stackrel{\rightharpoonup}{\mathrm{u}}$ | $\stackrel{\infty}{\infty}$ | 5 | $\stackrel{\infty}{\infty}$ | $\bigcirc$ | 9 |
| Dif. | $\stackrel{0}{4}$ | $\stackrel{\circ}{i}$ | $\begin{aligned} & 0 \\ & \text { it } \end{aligned}$ | ou | $\begin{aligned} & 0 \\ & \text { t } \end{aligned}$ | $\begin{aligned} & 0 \\ & \text { N } \end{aligned}$ | $\begin{aligned} & 0 \\ & \text { Nún } \end{aligned}$ | $\begin{aligned} & 0 \\ & \text { N } \end{aligned}$ | $\begin{aligned} & 0 \\ & \text { io } \end{aligned}$ | $\begin{aligned} & 0 \\ & \underset{\sim}{u} \end{aligned}$ | $\begin{aligned} & \text { ou } \\ & \text { ín } \end{aligned}$ | $$ | $$ | $\stackrel{N}{\sim}$ |

Table 3 and Chart 4 represent individual values with a small dispersion, ranging from T-1 0.14 and 0.11 , values lower than those recorded at T-2.

The arithmetic mean has increased, the values recorded at T-2 are higher than the values recorded at T-1 by 0.23 .
The coefficient of variability shows lower values at T-2 (6.01) in comparison to T-1 (8.75), which indicates a high homogeneity of the team of athletes.

Pull-ups at fixed bar Table no. 4

| Nume şi prenume | $\begin{aligned} & P \\ & \hline ? \end{aligned}$ | P | סor | $\square$ <br>  <br> $\vdots$ | ? | $\xrightarrow{\square}$ | $\stackrel{\cap}{-1}$ | $\stackrel{-}{-}$ | $\xrightarrow{3}$ | $\stackrel{Z}{\square}$ | $\stackrel{-1}{\square}$ | X | As | CV |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| T1 | 4 | 6 | 5 | 7 | 5 | 7 | 4 | 6 | 5 | 6 | 7 | 5,63 | 1,12 | 19,89 |
| T2 | 9 | 10 | 9 | 13 | 9 | 12 | 9 | 11 | 10 | 10 | 12 | 10,36 | 1,43 | 13,80 |
| Dif. | 5 | 4 | 4 | 5 | 4 | 5 | 5 | 5 | 5 | 4 | 5 | 4,73 | 0,31 | 6,09 |

With a low dispersion of individual values of each athlete, those are contained in $\mathrm{T}-1-1.12$, values lower than those obtained at T-2-1.43. The arithmetic mean has increased, the values recorded at T-2 - (10.36), are higher than those recorded at T-1 - $(5,63)$, the differences arising in the arithmetical mean values are depending on the methods and means applied in the experiment.
The coefficient of variability in T-2 has a value 13.80 times lower than the value recorded at T-1, - 19,689. It is a large enough spreading, thus a medium consistency.
The difference between the mean values between T-1 and T-2 of the team of athletes is 4.73.

From the analysis of results obtained by the athletes in the experiment in the four trials that they had to pass it results clearly that the methods and means specific to athletics that we used during the entire period of preparation, had been well chosen and even appreciated by the young boxers. In all the trials, the values of the results of the final testing have been better than of the initial testing.

## CONCLUSIONS

As a result of performing the study and of processing the data obtained from the training carried out, we can say that the research has confirmed the working hypothesis in the following directions: From the training plans investigated it results that more and more of the athletes are heading toward athletic training which satisfies both the development of both strength and speed and resistance.
On the basis of the representations could not compile a model of training focused on idea of all qualities drive but mainly of force, speed, without forgetting means for the development of resistance.
It is absolutely necessary that the physiology, biochemistry and psychology to contribute to giving explanations of specific questions such as: the limit of the occurrence of oxygen debt, the achievement of the highest effort saving at the age of 13-14 years.
As a result of the research an operating model emerged, with the dynamics of the effort in annual cycle, which uses mainly methods and means specific to athletics.

The knowledge of the level of achieving the objectives on the basis of the measured data, is actually a feature of the professional discipline of the specialist in sports training.
By using the statistical mathematical Interpretation of the results of the two verifications (the initial verification and the final one) carried out following the application of training methods specific to athletics, the present study offers the opportunity of a real verification of the progress achieved by most athletes.
Through the experiment carried out during a sports training of a year, we aimed to show the higher efficiency of the lessons of training which use mainly methods and means specific to athletics in order to develop the motoric capacity to a group of beginner boxers.
The conclusions that we have drawn after the application of the experiment on efficiency analysis during a sporting year, are the following:

- the overall investigations carried out is outlines the superiority of the results from final testing after the application of the training program focused on methods and means specific to athletics;
- the values of the arithmetic mean are situated on an ascending continuous curve, with high values at T-2 (final testing), compared to T-1 (initial testing);
- the greatest progress has been made to the following trials:
* pull-ups at fixed bar ; * standing long jump;
* 50 m speed running * resistance running.

The high rate of progression to most of the verifications for the $\mathrm{T}-2$, compared to $\mathrm{T}-1$ is probably due also to the low values of the results recorded at the initial verification.
The homogenization of the teams of athletes is carried out not by stagnation of higher values, but much more by significant progress of athletes with weaker initial results. The best example is for pull-ups at fixed bar.
The means used, the grading of the effort according to the level of individual training and the value group and the technology of the expected operation have validated the hypothesis of the experiment.

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