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EXPERIMENTAL RESEARCH REGARDING THE IMPROVEMENT OF THE SELECTION PROCESS FOR THE TRACK AND FIELD MIDDLE-DISTANCE AND LONG-DISTANCE RUNNING EVENTS

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Abstract

This paper arrives in a context when in Romania there are several selection criteria and action directions, which, however, do not fully solve the much more complex phenomenon of directing athletes toward the middle distance and long distance running events, thus it considers that it would be beneficial to identify a battery of tests for the selection, with markers that would favor the improvement of this process. The research consisted in an experiment within which batteries of tests were applied, structured on the components of the champion model, meaning the anthropometric, the functional, the psychological, and the motor skills parameters. For a better relevance of the research, performance markers were also included, with the results recorded during the area and national competitions at the time of the experiment. The selection and the direction of the 14-15 year-old athletes toward the middle distance and long distance running events constitutes an important starting point in getting the needed results, significantly shortening the road to great performances. This is confirmed by the final results of the experiment, in which the experimental group values overlap the champion values, the control group values being inferior. It is necessary for a permanent observation of the dynamics of the track and field results for the middle distance and long distance running events worldwide, in order to be able to make predictions in regards to their development and to be able to make corrections in the selection process in due time.

Key words: *improvement, selection process, track and field, middle-distance, long-distance running, experiment*

5. Introduction

These selection process, being a prognosis process, it allows in certain stages of training the prediction of possible great performances, (Dobrescu, 2005) as several female athlete have confirmed, athletes who have made world history in track and field, and have distinguished themselves through their talent and results, athletes such as: Gabriela Szabo, Doina Melinte, Elena Fidatov, Iulia Negură, Violeta Beclea Szekely, Paula Ivan, etc.

This process, in its evolution, presupposes certain methodical conditions that refer to the conception and application of certain pedagogical, physiological, psychological concepts that can offer prognoses for the skills that help the athlete give top performances, and the possibility to develop them. (Păunescu, 2007)

Considering the continuous improvement of athletic performances and the fact that discovering the

talent is not enough to get good performances, scientific selection represents the only process that gives experts strategies to spot athletes (Gimbel, 2000) with superior skills for the middle distance and long distance running events.

One of the development directions of contemporary sports training is based on the idea of a continuous improvement of selection strategies, "taking into account the improvement of the human race, the allele genes, or the heterosis phenomenon." (Dragnea, 1996).

Taken as a system, any sport "has among others a functionality, and especially its own specific essence that governs it all the time, during training, and especially during official competitions (Ghenadi, 1994).

This paper arrives in a context when in Romania there are several selection criteria and action directions, which, however, do not fully solve the much more complex phenomenon of directing athletes toward the middle distance and long distance running events, thus it considers that it would be beneficial to identify a battery of tests for the selection, with markers that would favor the improvement of this process.

These authors' desire to share their experiences as athletes specialized in this event and as coaches determined them to direct their research toward improving the selection process for the middle distance and long distance running events.

This theme can be current through its contributions in regards to the capitalization of certain aptitudes of children who love this sport and directing them toward the endurance events, supporting the young trainers, in the spirit of carrying out the traditions and fame of the Romanian athletics school.

6. Materials and Methods

Based on previously mentioned premises, in order to organize and conduct the research regarding new strategies for improving the selection process for the track and field endurance events, the following hypotheses were elaborated:

Hypothesis 1. Presumably, it is possible to determine the structural components and to identify the essential elements of a selection process for the track and field middle distance and long distance running events.

Hypothesis 2. Presumably, one can make a selection in track and field for the middle distance and long distance running events based on certain batteries of tests that would assess the following parameters: anthropometric - morphological, proportionality, and body structures markers; functional: capacity of adaptation to effort; motor skills: general and specific motor skills; psychological: cognitive skills.

The research methods used for this study were: the study of the bibliographical material, the observation, the tests, the statistical-mathematical method and the graphical representation method.

The subjects of the research were selected from the 14-15 year-old female athletes selected for the middle distance and long distance running events, from 2 sports clubs, and were divided in two groups: 9 female athletes comprised the experimental group, from the Ceahlăul Piatra Neamț Sports Club, trained by Iulia Olteanu, and 9 female athletes constituted the control group, from the Botoșani Sports High-School, trained by Dana Vieru.

A group of 5 champions among the Romanian female athletes holding world and Olympic records for middle distance and long distance running: Gabriela Szabo, Elena Fidatov, Iulia Negură (Olteanu), Violeta Beclea Szekely, Paula Ivan. The data and information of the athletes in this group recorded at the National Sports Medicine Institute were used with their written agreement.

In order to improve the strategies of selecting and directing talented subjects toward great performance in the middle distance and long distance running events, instructional programs were applied, according to the research stages and the female athletes' training stages, specifically created for the experimental group of this research. The created training programs were applied daily over the course of the research and according to the training stage, as follows:

- the training phase between October 2013 – March 2014;
- the pre-competition phase between April – May 2014;
- the national competition phase between May – June 2014.

In July there was a rehabilitation period and then the training and base stage started again.

The research was organized on the basis of the conclusions drawn from the sociological study, taking the shape of an experiment within which batteries of tests were applied, structured on the components of the champion model, meaning the anthropometric, the functional, the psychological, and the motor skills parameters (Olteanu, 2015). For a better relevance of the research, performance markers were

also included, with the results recorded during the area and national competitions at the time of the experiment.

Also, in selecting the working instruments, the start point was represented by the morpho-functional and psychological demands of the 14-15 year-old female athletes, and the specific particularities of the motor and technical support of the endurance events. (FRA, 1987).

7. Results

At the end of the experimental research, one can see that during the anthropometric tests, the values recorded by the experimental group are closer to the champions' group, as seen in Figure 1.

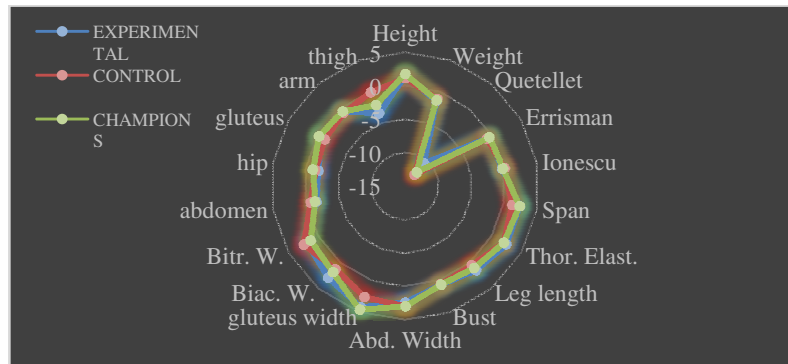


Figure 1. Final results - anthropometric tests

If in regards to the subjects' height, the increases are not significant (2.58 cm, 2.43 cm, 2.78 cm), in regards to their weight, the subjects in the experimental and the control groups recorded decreases of 4.41 kg and 4.60 kg, respectively, while the champions recorded a lower value, of 2.68 kg, which are all normal values for the puberty age.

The investigated markers show a harmonious development of the body segments, a low nutrition index specific to the athletes' diet (287.38; 269.00), a proportionality of the segments due to the reasonable growth of the lower limbs, and a bust with slight increases in the average value. (1.55 cm, 1.74 cm).

The span and length of the lower limbs, important aspects for the track and field selection, recorded larger growths in the experimental group and champion group (7.63 cm, 5.10 cm, respectively, and 1.77 cm, 2.44 cm, respectively), compared to 3.46 cm and 1.11 cm in the control group, which shows an increase in the joints and an ability to perform specific movements with more range.

The thoracic elasticity shows a favoring of the adaptation to effort through constant growths in the first 2 groups (2.25 cm for the experimental group and 2.40 cm for the champion group), and a minimal deviation from the central value. The values of the biacromial and bitrochanteric widths contour in the experimental and the champion group the constitutional type that is specific to athletes, while in the control group the values of these two variables were less highlighted. (2.63 and 2.40, respectively).

In regards to the abdominal and gluteus widths, higher values were recorded in the control group, which proves that the studied athletes have a tendency toward an enlargement of these regions due to their puberty age. In regards to the adipose tissue, there is a relevant decrease in the abdomen, in the experimental and champion groups (-1.49 cm, and -1.30 cm, respectively), in the gluteus in the experimental group (-1.10 cm), and in the thighs in the experimental and champion groups (-2.20 cm, 2.00 cm). (fig. 1).

During the endurance tests, the training effort is mixed, predominantly anaerobic. That is why the markers for this component of the selection envisaged the ability to adapt to both an aerobic and anaerobic effort. (Rață, Rață, 2008)

The recordings show that the HR values (-2.00 b/min, -2.80 b/min in lying position, 2.56 b/min, 3.60 b/min in standing position) and BP values (-4.29 mmhg, -3 mmhg in lying position, -7.78 mmhg, -10.00 mmhg, in standing position) are within a good resting cardiovascular response and vegetative activity of the experimental and champion groups. (Fig. 2).

In regards to the subjects' capacity of a cardiovascular adaptation to the aerobic effort, there is an improvement, a fact certified by the recorded VO2 max values, with an increase of 8.14 ml/kg and 9.66 ml/kg, respectively, compared to 0.87 ml/kg in the control group. (fig. 2). Also, the STT (systolic tension time) values were increased in the two groups (3.84 w/kg and 5.63 w/kg), while in the control group, this marker decreases (-1.99 w/kg).

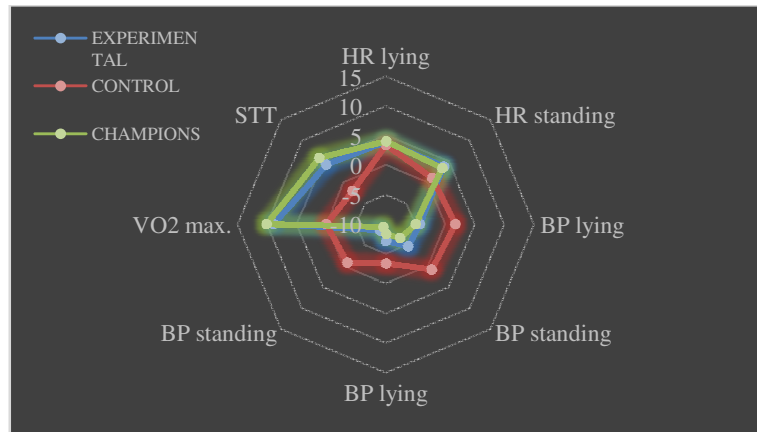


Figure 2. Final results - physiological tests

The psychological tests results highlighted an increased concentration ability in the experimental and champion groups, who recorded considerable value increases in the Baraj test, both quantitatively (14.44 and 15.40 centiles, compared to 11.33 centiles in the control group), and qualitatively (90.44 and 97.20 centiles compared to 59.11 in the control group). The Praga test value increase (14.22 and 14.40 centiles compared to 7.78 in the control group) proves that the two groups have a superior distributive attention. (Fig. 3)

The visual creativity test recorded the positive values of the experimental and champion groups female athletes' creative ability for competition (5.78 and 6.80 centiles, respectively, compared to 4.67 in the control group), which proves the role played by experience in the previous activity. (Fig. 3)

The subjects' intellectual qualities were highlighted through the IQ test, at which the experimental and champion groups recorded increases of 5.11 and 5.60 centiles, respectively, compared to the control group, of only 3.56 centiles. (Fig. 3)

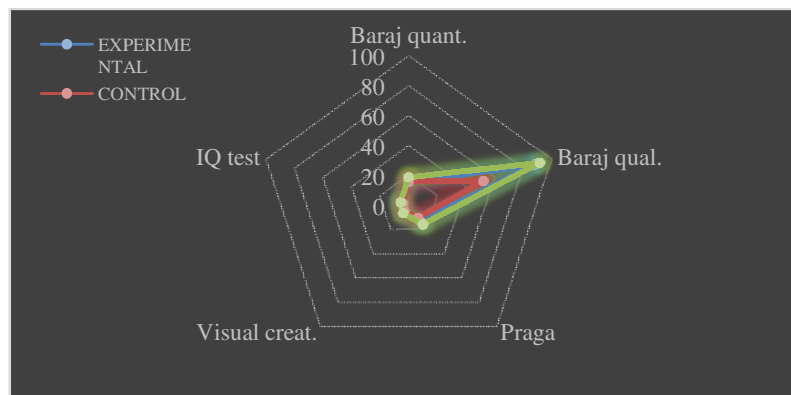


Figure 3. Final results - psychological tests

The testing of the experimental group subjects' general and specific endurance through the challenges and norms established at the beginning of the research shows that their motor profile is close to the champions'.

The recordings of the selected parameters have mostly positive values, which confirms the effectiveness of the instructional programs applied during this experiment, and of the training improvement strategies for endurance challenges.

If in regards to the general strength markers, tested using challenges such as long jump, spring, core and leg lifts, tractions and extensions, a small progress was recorded, in regards to the static strength markers, the experimental groups recorded higher values at the end of the research (bended arms chin-ups - 5.89s; 8.22s, 3.00s; and bended legs - 9.67; 11.33s, 11.40s). (fig.4)

One can say also that the dynamometric values recorded for the flexor muscles, scapular girdle and lumbar girdle in the experimental and champion groups are higher than the control group's. (5.89; 4.80; 11.89; 11.20)

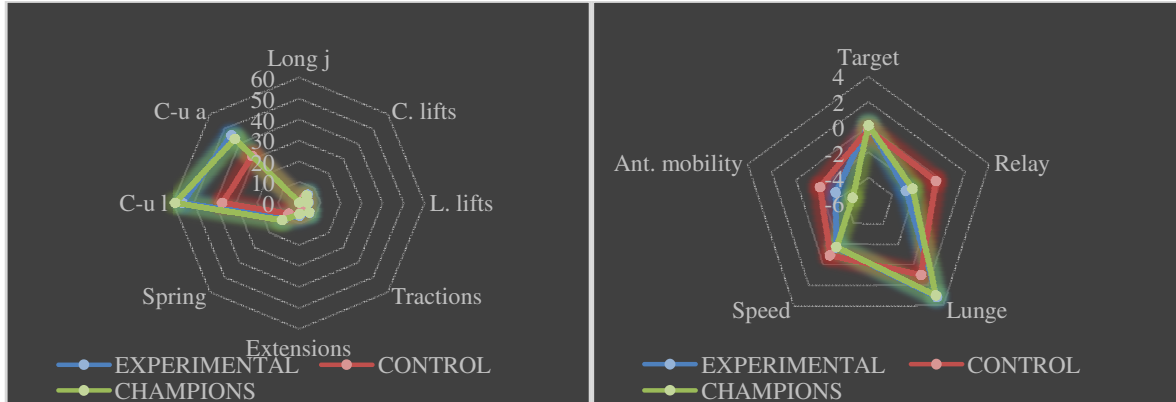


Figure 4. Final results - motor skills tests

Concerning the dexterity challenge, the relay, the values have decreased by 0.76 in the experimental group and by 0.48 in the champion group, and by somewhat less (0.46) in the control group. Also, during the ball target practice the champion group and the experiment group recorded more successful performances, 1.40 rep. and 0.11 rep, respectively, in comparison to the -0.22 rep. for the control group.

On the background of certain innate skills, but also as a consequence of basic athletic activity, there was important progress also in the anterior-posterior coxofemoral mobility challenges, with values of 1.89 cm and 2.20 cm for the first two groups, and of 1.44 cm for the control group.

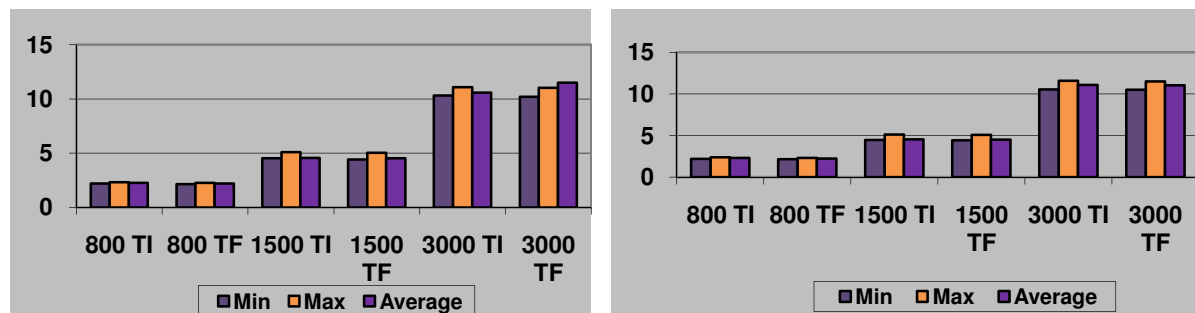


Figure 5. Final results - endurance tests

The results from both groups comprised in the experiment for the specialized events (800m, 1500m, 3000m) were recorded during training periods, between 2013 and 2014.

From the analysis of the results recorded by the experimental group, one can see that the results recorded during the 800 m event have decreased from one competition to another, from 2'27 to 2'21 recorded time, during the 1500 m event, from 4'58 to 4'54, and during the 3000 m event, from 10'59 to 10'49.

In regards to the control group, one can see that the results recorded during the 800 m event have decreased from one competition to another, from 2'29 to 2'24 recorded time, during the 1500 m event, from 4'52 to 4'51, and during the 3000 m event, from 11'08 to 11'04. (fig. 5).

In order to highlight the validity of the batteries of tests proposed in this research to improve the selection process, the authors took into consideration the correlation coefficient between the experimental group and the champion group values.

The student's t test verified the significance threshold of 0.05 for each marker, representing 95% for the confidence interval, with the possibility of screening the insignificant parameters for such a selection. In order to highlight this correlation, the authors used the SPSS software, which was applied for each marker, and which certified through the correlation of the values from the two groups the hierarchy of the predispositions favoring the improvement of the selection and direction process for the middle distance and long distance running events.

Starting from the morphological biotype that needs to favor the specific track and field endurance performances, and after analyzing the development particularities of the female athletes during puberty, 14 biological markers have been applied over the course of the experiment.

At the end of the sociological investigations and after discussions with over 150 track and field experts, 14 parameters were used in the experiment, out of which, after a statistical interpretation and correlations between the experimental group and the champion group values, 11 markers have surpassed the admitted threshold.

Out of the 7 physiological markers tested on the selected groups, only 6 were evaluated in the local clubs, and validated after the correlation.

Being a sport that demands volitional qualities, tenacity and intellectual qualities, 4 specific parameters were selected for the selection process, and after the correlation, 3 psychological markers were validated, at the end of the research.

Over the course of the experiment, most markers (18) were identified during the general motor skills tests and during the endurance challenges. These tests verified the skills for segmental strength, static dynamic and muscle tone, mobility, speed, spring, agility and specific motor skills through the endurance middle distance and long distance running events.

After the statistical-mathematical and the correlation coefficient evaluations, at the end of the research, 12 of them were relevant, for that reason being validated for the selection of the junior athletes for endurance events.

8. Conclusions

After analyzing the results recorded during the experiment, statistically interpreting the values recorded by the groups, the following conclusions were drawn, confirming the hypotheses of the research:

- The selection and the direction of the 14-15 year-old athletes toward the middle distance and long distance running events constitutes an important starting point in getting the needed results, significantly shortening the road to great performances. This is confirmed by the final results of the experiment, in which the experimental group values overlap the champion values, the control group values being inferior.

- The results recorded during the actual experiment are believed to be certitudes for the improvement of the strategy and direction strategies for endurance running events, identified through anthropometric, physiological, psychological and motor tests.

- In choosing the morphological biotype that is favorable for track and field, one needs to consider, besides height, weight, thoracic elasticity, some other details as well (span, biacromial and bitrochanteric widths, lower limb length, etc) and must respect the growth prognosis for the body at puberty.

- Also, the research results show that during the endurance tests, the specific effort is mixed, and it is needed an adaptation of the female athletes to an effort that tends to be anaerobic, which was highlighted by the functional tests.

- The psychological tests applied during the experiment have identified superior values in regards to the experimental group athletes' ability to concentrate, resistance to mental fatigue, visual creativity, imagination, and IQ.
- In regards to the motor skills tests, constant variables were identified, essential for the evaluation of aptitudes favoring general and specific skills and technical training in 14 – 15 year-old female athletes.
- It is necessary for a permanent observation of the dynamics of the track and field results for the middle distance and long distance running events worldwide, in order to be able to make predictions in regards to their development and to be able to make corrections in the selection process in due time.

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SOCIAL INTEGRATION OF MIDDLE AGE WOMEN BY USING THE FITNESS MEANS

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Abstract

By analysing the literature in the field, one notes that most authors claim that the human being's socializing process through various means contributes effectively to his or her social integration. The socializing process may be pursued through various means, and one of them is physical culture.

Keywords: women, social integration, fitness.

Due to changes in the social and cultural modifications of the individual in our society has changed the role of women. Thus it was that they have access to different types and ways to socialize among which and fitness, a process which ensures good physical condition, but also openness to new horizons and opportunities by interacting with other individuals belonging to different social categories [5].

The research topic is the socializing process in the case of women aged from 35 to 45, by means of fitness, according to a previously established psycho-pedagogical pattern. To this end, there have been established the means of action and recovery through fitness, their acceptance and assimilation by women aged 35 to 45, with respect to their morpho-functional and psychomotor specificities, as well as to their social and family life.