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THE SOMATIC AND MOTION EVALUATION OF YOUNGSTERS AT RISK OF SOCIAL EXCLUSION

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Abstract

Our paper aims to assess the somatic characteristics and the motor ability of young people at risk of social exclusion due to the economic situation. This scientific research targeted the somatic development and the motor ability of people of male gender, residents in Bucharest and Ilfov County, and also a comparative analysis between the Roma population and the other participants in the study. We conducted an applied investigation over a period of 14 months. The research included 130 young people aged between 16 and 29. As research methods, we used documentation, observation, measurement, statistical and mathematical methods and graphical method. The objectivity of the study was obtained through a set of 6 tests and tasks: height and weight measurement, 10x5m run, maximum number of push-ups in 30", maximum number of trunk flexions from dorsal lying in 30" and the Sargent test. Our results determine the motor and somatic potential of young people at social exclusion risk as a result of the economic situation. These results illustrate the picture of a young population with poor results in their somatic and motor potential, as far as we can see. In this context, we can say that the target population of the study is characterised by average somatic development, but has reduced motor potential as regards the speed component.

Keywords: Young people, evaluation, control tests.

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1. Introduction

Physical education and sport represent "a social phenomenon whose importance has grown enormously, engaging large categories of people and becoming increasingly more practiced and viewed" (Dragnea, Bota, & Stănescu, 2000, p. 148), which proves capable to produce fundamental changes in the global social landscape. Practicing sports induces recreation, the best means of socialising with other people and establishing new relationships, a perfect means of restoring one's energy.

In the definition of sport provided by the European Sports Charter, it is specified that its objective is expressing or improving physical fitness and mental well-being, as well as forming social relationships or obtaining results in competitions at all levels. Physical education and sport have one essential attribute whose effect is social inclusion, and that is the practice of specific group activities (Dragnea, Bota, & Stănescu, 2000).

The current research represents a sequence of the project "Strategies for the future, strategies for youth", which has developed specific methodologies and strategies based on sport with the purpose of improving the degree of social inclusion and combating exclusion for vulnerable young people because of their economic situation.

2. Problem Statement

As social integration is facilitated by methodologies and strategies which are specific to sport, we emphasised in our scientific research the somatic potential of young people at risk of social exclusion caused by economic factors. As a result of the investigation, which "must be seen as an intrinsic process generating information with a self-regulating function, with a view to increasing the efficiency of the suggested programmes" (Tudor, 2013, p. 37), methodologies and strategies specific to sport have been designed for facilitating young people's social integration. This phenomenon takes place in the context of a perceived decrease in the manifestation of motor ability among the young population, and especially in the area of strength (Stănescu, Ciolcă, & Stoicescu, 2015). The determination was based on an "optimal strategic plan designed with a high degree of objectivity and in close correlation with the needs of the population" (Grigore, 2011, p. 15).

3. Research Questions

The research was designed around two hypotheses. The first refers to determining the level of somatic and motor development within the target group, as a result of applying the set of tests and tasks, while the second one will highlight whether there are significant somatic and motor differences between the ethnic Roma subjects and the other participants in the research.

4. Purpose of the Study

This scientific study aims to evaluate the somatic development and the motor ability of people of male gender, residents in Bucharest and Ilfov Country, and to analyse the ethnic Roma population and the other subjects comparatively.

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5. Research Methods

This is an observational-type study conducted over a period of 14 months. The participating subjects were 130 young male people, including 44 people of Roma descent, aged between 16 and 29 years, from Bucharest and Ilfov County. The evaluation was done through a set of 6 tests and tasks, namely: height measurement, body mass measurement, 10x5m run, maximum number of push-ups in 30", maximum number of trunk flexions from dorsal lying in 30" and the Sargent test. This set of tests and tasks complements the diversity of available tests that assess the level of motor development in the investigated population and are designed by various authors (Cazorla, 1989; Soppelsa & Albaret, 2005). The tests and tasks "determine a willing participation in the evaluation process through the development of the ability for self-control" (Grigore, 2008, p. 180).

Further on, we shall describe the set of tests and tasks:

- Height measurement

Aim: to determine the height of the subjects

Resources: measurement scales, tape, forwarder

Methodology: the student is in an orthostatic position, lower limbs extended and the spine straight (the standing position). The heels, the inter-buttock cleft and the spine near the shoulder blades touch the bar of the scales (the wall). The chin is lowered toward the chest so that the upper edge of the external auditory canal and the external angle of the eye are on the same horizontal line. The bar of the measurement scales is set at the height of the crown (the forwarder forming a straight angle between the wall and the crown of the head); the measurement is done between the vertex and the support plane, and the figure that is read is the one in front of the mark. The result is recorded in meters (m).

Observation: the subject must not be wearing shoes.

- Body mass measurement

Aim: to determine the body mass of the subjects

Resources: electric scales

Methodology: with the subject standing relaxed on the scales, the body mass value is recorded in kilograms (kg).

Observation: the subject must be lightly dressed.

- 10x5m run

Aim: to calculate coordination speed

Resources: a 5-meter long and 1-meter wide running track on flat course, marked with 1-meter long parallel lines at its two ends. The track shall be cleaned beforehand to avoid any accident. An additional distance of at least 2 meters to any potential obstacle (fence, wall) is necessary at the two ends of the running track, so that the student can turn safely while running. A chronometer and 4 flagpoles complement the resources.

Methodology: standing, with free start, the player must run 5m ten times at full speed. Changes in direction shall be made beyond the marked line at each extremity. The chronometer shall be placed 10m away from the track, laterally, and shall be started when the runner's back foot leaves the ground.

- The Sargent test

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Aim: to measure explosive power in the lower limbs

Resources: a flat ground surface, a wall graduated vertically every 5cm

Methodology: two measurements are performed:

- the first, when the player is on the ground, near the wall and holding an arm in maximum extension;
- the second, when the player performs three jumps from a semi-flexed position, without take-off, 30cm away from the wall. The extended arm shall mark the highest point of the jump to the wall. The best jump shall be written down, from which the first measurement is subtracted and the difference is recorded and used as an evaluation criterion.

Observation: the jumps shall be performed successively, with a maximum break of 5" between them.

- Maximum number of pushups in 30"

Aim: to measure endurance strength in the upper limb muscles

Resources: 2x1m plane surface, chronometer

Methodology: from lying face down, with the feet and palms set firmly on the floor, body straight, eyes ahead, the subject bends his/her arms until the chest almost touches the floor (a distance of maximum 10 cm), and returns to the initial position. In the record sheet, we enter the maximum number of repetitions within 30". Only one set of repetitions is permitted.

Observation: the incorrect executions shall not be counted.

- Maximum number of trunk flexions from dorsal lying in 30"

Aim: to measure endurance strength in the abdominal muscles

Resources: 2mx1m plane surface/ gym mat/ fitness mat, chronometer

Methodology: from dorsal lying, head behind the nape, soles firmly set on the floor, knees half-bent, legs set apart, the subject performs as many trunk flexions as possible in 30". A correct execution counts when the subject touches the mat with his/her shoulders and the knees with his/her elbows. In the record sheet, we enter the maximum number of repetitions. Only one set of repetitions is permitted.

Observation: to set his/her feet firmly on the floor, the student shall be helped by a classmate or shall anchor the feet under the last step of a fixed ladder. The incorrect executions shall not be counted.

In this paper, the following research methods were used: scientific documentation, observation, measurement, the statistical and mathematical method, the graphical method. To highlight whether the differences between the average results obtained by the two categories of subjects are significant, the statistical analysis included the computation of Z-test for samples larger than 30 students and a 95% confidence interval.

6. Findings

The data processing and analysis was done on three levels: globally, boys and Roma boys. Synthetically, the result analysis reflects the following:

- The values of central tendencies indicate a population of average somatic development, especially as regards height. In terms of motor ability, the analysed community records average values in strength tasks, this tendency of the results to diminish being signalled in previous

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research by Stănescu, Ciolcă and Stoicescu (2015). In the other tasks that involve motor skills and speed, the results are unsatisfactory;

- The data distribution around the average indicate positive asymmetry for most of the tasks, which constitutes a positive phenomenon, except for the 10x5m run task and the body mass measurement, while the push-ups in 30" task shows a relatively balanced distribution;
- The group homogeneity differs during the evaluation, therefore the level of homogeneity is high in the height and 10x5m run tasks; a lack of homogeneity is recorded in the push-ups in 30" task, and a moderate homogeneity is recorded in all the other tests.

Table 01. Global results

	Body mass	Height	10x5m	Push-ups 30"	Trunk flexions 30"	Sargent test
Average	67.46	174.58	17.64	27.63	28.16	37.58
Max	107.00	191.00	22.60	48.00	42.00	70.00
S	9.30	6.43	1.46	7.06	5.34	6.65
Min	50.00	162.00	14.12	2.00	15.00	15.00
CV	13.78	3.68	8.27	25.57	18.96	17.70

The comparative analysis of the data obtained by the two groups of subjects suggests the following:

- The average values corresponding to boys as regards the somatic development are significantly higher than those obtained by Roma boys. This difference may be associated with the eating habits and the lifestyle of the investigated population (Rich-Edwards et al., 1994; Stevens et al., 1998). The results corresponding to motor ability also favour the boys, except for the Sargent test, where Roma boys record a higher value;
- The values of Z-test certify a significant difference between the average results of the two samples only in the somatic tests, not in the motor tests, where the highlighted differences are insignificant;
- The data distribution around the average indicate a similarity in the two groups corresponding to four tests, while in the 10x5m run test and the Sergeant test, the results favour the group of boys;
- The variability factor reflects a higher level of homogeneity in the case of the group of boys compared to the Roma boys in four of the tests, while in the trunk flexions task the level of homogeneity is relatively similar for the two groups. In the Sargent test, the homogeneity is better for the group of Roma boys.

Table 02. Results - boys

	Body mass	Height	10x5m	Push-ups 30"	Trunk flexions 30"	Sargent test
Average	69.07	175.51	17.54	28.22	28.67	37.48
Max	107.00	191.00	21.69	48.00	42.00	70.00
S	9.55	6.24	1.35	7.04	5.42	7.39
Min	53.00	164.00	14.12	4.00	15.00	15.00
CV	13.82	3.56	7.69	24.93	18.92	19.73

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Table 03. Results - Roma boys

	Body mass	Height	10x5m	Push-ups 30”	Trunk flexions 30”	Sargent test
Average	64.32	172.75	17.82	26.48	27.16	37.80
Max	86.10	190.00	22.60	39.00	39.00	47.00
S	7.99	6.46	1.65	7.06	5.08	4.96
Min	50.00	162.00	15.22	2.00	16.00	27.00
CV	12.43	3.74	9.24	26.66	18.71	13.12

Table 04. Average summary

	Body mass	Height	10x5m	Push-ups 30”	Trunk flexions 30”	Sargent test
BOYS	69.07	175.51	17.54	28.22	28.67	37.48
TOTAL	67.46	174.58	17.64	27.63	28.16	37.58
ROMA	64.32	172.75	17.82	26.48	27.16	37.80
Z-test	2.99	2.33	1.03	1.33	1.56	0.25

Table 05. The variability factor – summary

	Body mass	Height	10x5m	Push-ups 30”	Trunk flexions 30”	Sargent test
BOYS	13.82	3.56	7.69	24.93	18.92	19.73
TOTAL	13.78	3.68	8.27	25.57	18.96	17.70
ROMA	12.43	3.74	9.24	26.66	18.71	13.12

7. Conclusion

Following the recording, processing and interpretation of the data, we can assert the following:

- The values of the central tendency reflect higher values of the somatic component in the case of boys, compared to Roma boys. This phenomenon is present in the motor component as well, except for the Sargent test. Thus, we can say that the evaluated Roma population is situated, from a somatic and motor point of view, under the values recorded by the other participants;
- At the same time, we have to mention that the differences between the Roma population and the others are only significant from a somatic, and not a motor perspective, which has generated joint programmes aimed at the social inclusion through motor activities for all male gender individuals;
- The distribution of results around the average generally reflects positive aspects, with their alignment in the area of higher-than-average values, except for the 10x5m run task, where this alignment to the right of the average is not beneficial;
- As far as the level of homogeneity is concerned, we notice that the group is moderately homogenous from a somatic point of view, while in terms of motor skills, the group has a high degree of homogeneity in the running test, contrasting with the strength tests, where the level of homogeneity is low;
- These results present a young population who, from the point of view of their somatic development and motor skills, records poor results. In this context, we can assert that the target population of the study has average somatic development, but with low motor potential, especially in the speed component.

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This research concludes that the young male population under investigation (16-29 years old) has average somatic development with modest motor potential, which entails a question regarding the quality of physical education and sport activities. Additionally, the research highlights that the young Roma population records lower results than the rest of the population, especially where the somatic aspect is concerned, except for the Sargent test. This should by no means prevent the motor integration of the subjects, "since players who are less tall, but possess good motor qualities, can be very efficient in the game" (Ciolcă, 2005, p. 40).

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