

ICPESK 2018
International Congress of Physical Education, Sports and
Kinetherapy. Education and Sports Science in the 21st
Century, Edition dedicated to the 95th anniversary of UNEFS

SOMATIC AND MOTOR DEVELOPMENT OF YOUNG WOMEN
AT RISK OF SOCIAL EXCLUSION

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Abstract

Introduction: The current research is part of the project “Strategies for the future, strategies for youth”, which has developed specific methodologies and strategies based on sport, being intended for young people who are vulnerable because of the economic situation. Purpose of the Study: The scientific approach aimed to analyse the somatic development and motor ability of the female population from Bucharest and Ilfov County, as well as to make a comparative analysis between Roma (Romani) people and the other subjects involved in the study. Research Methods: This applicative research was conducted over a period of 14 months. The participating subjects are represented by 92 young women, of whom 18 Roma girls aged between 16 and 29 years. The research objectification was achieved using a battery made up of 6 tests and controls (assessments), namely: height measurement, body mass measurement, 10x5m shuttle-run test, 30-second push-up test, 30-second sit-up test, Sargent test. The research methods used are: scientific documentation, observation, measurement, mathematical and statistical method, graphical method. Findings: The results of the research are reflected in determining the somatic and motor potential of young women at risk of social exclusion because of the economic situation in our country. Conclusion: These results indicate a young population who, from the somatic point of view, has tendencies towards adiposity, as shown by the ratio between body mass and muscle strength, and from the motor point of view, we can notice that the obtained values are modest.

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Keywords: Young women, tests, assessments.



1. Introduction

The European Sports Charter mentions that sport refers to all forms of physical activity which aim to express or improve physical fitness and mental well-being, as well as to build social relationships or achieve results in competitions at all levels (Council of Europe, 2001). The essential attribute of physical education and sports is social integration, more precisely the practice of specific group activities. Sports activity is “a social phenomenon whose importance has grown enormously, engaging large human categories and becoming much more practiced and watched” (Dragnea, Bota, & Stănescu, 2000, p. 148), being able to produce fundamental changes in the global social picture. Physical education and sports induce relaxation, are the best way to come into contact with other people and establish new relationships, and are also a means to regenerate energy.

This research is part of the project “Strategies for the future, strategies for youth”, which developed specific methodologies and strategies based on sport in order to improve social inclusion and combat exclusion for young people in risk categories as a result of the economic situation.

2. Problem Statement

Social integration is facilitated by sport-specific methodologies and strategies. Thus, in our scientific approach, we highlighted the somatic and motor potential of young women at risk of social exclusion because of the economic situation. Following the assessment, which involves a set of operations and “should be regarded as an intrinsic process generating information that has a self-regulatory function aimed to increase the effectiveness of the proposed programmes” (Tudor, 2013, p. 37), we have developed methodologies and strategies specific to sports disciplines to facilitate the social integration of youth. This process took place in the context of noticing a downward trend in the young people’s level of motor ability, especially with regard to the manifestation of strength (Stănescu, Ciolcă, & Stoicescu, 2016, p. 610). The determination was based on an “optimal strategic plan achieved at a high level of objectivity and in close correlation with the needs of the population” (Grigore, 2011, p. 15).

3. Research Questions

The scientific approach was designed around two hypotheses. The first hypothesis refers to determining the level of somatic and motor development of the target group after applying a battery made up of tests and controls (assessments), and the second hypothesis will reveal whether there are significant somatic and motor differences between Roma subjects and the other participants in the research.

4. Purpose of the Study

This research aimed to assess the somatic development and motor ability of the female population from Bucharest and Ilfov County, as well as to make a comparative analysis between Roma people and the other subjects involved in the study.

5. Research Methods

This ascertaining research was conducted over a period of 14 months. The participating subjects are represented by 92 young women aged between 16 and 29 years, from Bucharest and Ilfov County. The

assessment was performed using a battery made up of 6 tests and controls (assessments), namely: height measurement, body mass measurement, 10x5m shuttle-run test, 30" push-up test, 30" sit-up test, Sargent test. This battery including tests and controls complements the variety of test batteries that measure the motor development of the investigated population, such as those designed by Cazorla (1989) or Soppelsa and Albaret (2005).

The tests and controls "lead to conscious participation in the assessment process by developing the self-control ability" (Grigore, 2008, p. 180).

In the following lines, we shall describe the battery consisting of tests and controls (assessments):

Height measurement

Objective: To determine the height of the subjects

Resources: Stadiometer, tape measure, setsquare

Methodology: The subject is in orthostatism, with the lower limbs in extension and the back straight ("standing straight" position). The heels, intergluteal cleft and spinal column at the shoulder blades touch the rod of the stadiometer (the wall). The chin is lowered to the chest so that the upper edge of the external auditory conduct and the eye's external angle are on the same horizontal line. The bar of the stadiometer is fixed on the top of the head (the setsquare is at a right angle to the wall and the highest point of the head). The height between the vertex and the feet (support surface) is measured and the corresponding figure on the marker is recorded in meters (m).

Observation: The subject must be barefoot.

Body mass measurement

Objective: To determine the body mass of the subjects

Resources: Electronic scale

Methodology: The subject stands relaxed on the electronic scale. Body mass is recorded in kilograms (kg).

Observation: The subject must wear light clothing.

10x5m shuttle-run test

Objective: To measure running speed and coordination

Resources: A running track on flat ground, having 5m in length and 1m in width, is marked at both ends with parallel lines which are 1m long. The ground will be cleaned before performing the test in order to prevent any injury. At the ends of the running track, an extra distance of at least 2m to a possible obstacle (fence, wall) will be required, so that the subject can safely turn while running. A timer and 4 cones are also used as resources.

Methodology: From the standing position, with a free start, the subject must run 10 times the distance of 5m, at full speed. The changes of direction will be performed beyond the marking line that exists at each end. The timekeeper will be placed 10m away from the track, laterally, and will start the stopwatch when the rear leg of the runner leaves off the ground.

30" push-up test

Objective: To measure strength and endurance of the upper body

Resources: Flat surface of 2m/1m, timer

Methodology: From the lying prone position, with the support of legs and palms on the ground, the body stretched and the eyes looking forward, bending the arms until the chest gets close to the ground (at

a distance of no more than 10cm), and then return to the starting position. The maximum number of repetitions performed within 30 seconds will be recorded in the sheet. Only one series of repetitions is allowed.

Observation: Incorrect executions will not be counted.

30'' sit-up test

Objective: To measure strength and endurance of the abdominal muscles

Resources: Flat surface of 2m/1m, gym mat, fitness mat, timer

Methodology: From the lying supine position, with both hands behind the head, feet flat on the ground, knees half-bent and legs apart, the subject performs as many sit-ups as possible within 30''. An execution is considered to be correct when touching the mat with the shoulders and the knees with the elbows. The maximum number of repetitions performed within 30 seconds will be recorded in the sheet. Only one series of repetitions is allowed.

Observation: To fix the feet on the ground, the subject will be helped by a classmate or will anchor the feet under the last step of a fixed ladder. Incorrect executions will not be taken into account.

Sargent test

Objective: To measure the leg muscle power

Resources: Flat ground surface, a wall vertically marked every 5 centimetres

Methodology: Two measurements are performed: the first, when the subject is on the ground, near the wall, with the raised arm in maximum extension; the second, when the subject performs three jumps from a half-bent position, while standing 30cm away from the wall. The extended arm will mark the highest point of the jump on the wall. The best jump will be recorded, of which the first measurement will be deducted, by scoring the difference that will serve as an assessment criterion.

Observation: Jumps are performed consecutively, with a break of no more than 5'' between executions.

The research methods used are: scientific documentation, observation, measurement, mathematical and statistical method, graphical method. In order to highlight whether the differences between the means obtained by the two categories of subjects are significant, the statistical processing has also included the calculation of Z-test for a 95% confidence interval.

6. Findings

The data processing and interpretation were achieved on three levels: globally, girls and Roma girls. Analysis of the obtained results synthetically reflects the following issues:

- The central tendency scores reveal a population with moderate somatic development, particularly in terms of height, and the ratio between body mass and height is optimal. As regards motor ability, the investigated group shows modest scores in the strength tests, this trend of decline in the results being also emphasised in previous studies by Stănescu et al. (2016). In the other tests involving speed, as a motor skill, the results are satisfactory for speed-coordination and unsatisfactory for speed-strength;
- The data distribution around the mean indicates positive asymmetry for most controls, which is a positive phenomenon, except for the 10x5m shuttle-run test and the body mass measurement,

while the Sargent test indicates negative asymmetry, which, correlated with the unsatisfactory mean, reflects a worrying situation;

- The homogeneity of the group is different throughout the assessment. Thus, the level of homogeneity is good for the somatic tests, moderate for the 10x5m shuttle-run test and the Sargent test, but a lack of homogeneity is noted for the 30” push-up test and the 30” sit-up test.

The overall results achieved by the participating subjects are shown in Table 01.

Table 01. Overall results

	Body mass	Height	10x5m	30” Push-ups	30” Sit-ups	Sargent Test
Mean	57.01	166.02	18.93	14.65	21.83	29.62
Max	86.00	181.00	28.85	35.00	38.00	40.00
S	6.80	7.33	1.89	7.59	6.12	5.71
Min	37.00	152.00	16.20	0.00	10.00	11.00
CV	11.93	4.41	9.96	51.78	28.04	19.27

The comparative analysis of the results achieved by the two groups of subjects reveals that:

- The average values for girls, in terms of somatic development, are superior to those obtained by Roma girls. 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). Average values for motor ability are also favourable to girls compared to Roma girls;
- The Z-test scores confirm a significant difference between the averages of the two samples with regard to height, the 10x5m shuttle-run test and the 30” sit-up test, while for the other tests, the differences are not significant;
- The distribution of results around the mean shows similarity for both groups in the case of the push-up test, where the distribution is positive for Roma girls, and the Sargent test, where the grouping of results is in favour of girls;
- The coefficient of variation (CV) indicates a higher level of homogeneity for the group of girls, compared to Roma girls, in all tests. It should also be noted the lack of homogeneity in both groups for the strength tests.

Tables 02 and 03 show the results achieved by girls and Roma girls, and Tables 04 and 05 show the summary table for average scores and the summary table for the coefficient of variation.

Table 02. Results – Girls

	Body mass	Height	10x5m	30” Push-ups	30” Sit-ups	Sargent Test
Mean	57.19	166.89	18.56	15.20	22.77	30.16
Max	79.00	181.00	24.06	27.00	38.00	40.00
S	5.97	7.48	1.39	6.42	5.73	5.21
Min	45.00	152.00	16.20	0.00	11.00	20.00
CV	10.44	4.48	7.50	42.25	25.16	17.28

Table 03. Results – Roma girls

	Body mass	Height	10x5m	30” Push-ups	30” Sit-ups	Sargent Test
Mean	56.28	162.44	20.45	12.39	17.94	27.39
Max	86.00	171.00	28.85	35.00	29.00	39.00
S	9.68	5.54	2.76	11.15	6.30	7.15
Min	37.00	153.00	17.22	0.00	10.00	11.00
CV	17.20	3.41	13.52	89.97	35.11	26.12

Table 04. Summary table for average scores

	Body mass	Height	10x5m	30” Push-ups	30” Sit-ups	Sargent Test
Girls	57.19	166.89	18.56	15.20	22.77	30.16
Total	57.01	166.02	18.93	14.65	21.83	29.62
Roma girls	56.28	162.44	20.45	12.39	17.94	27.39
Z-Test	0.38	2.83	-2.81	1.02	2.96	1.54

Table 05. Summary table for the coefficient of variation

	Body mass	Height	10x5m	30” Push-ups	30” Sit-ups	Sargent Test
Girls	10.44	4.48	7.50	42.25	25.16	17.28
Total	11.93	4.41	9.96	51.78	28.04	19.27
Roma girls	17.20	3.41	13.52	89.97	35.11	26.12

7. Conclusion

Following the data recording, processing and interpretation, we can state that:

- The central tendency scores reflect superior values of the somatic component in the case of girls compared to Roma girls. This phenomenon is also found for the motor component in all four applied tests. Thus, we can say that the assessed Roma population has, from the somatic and motor points of view, lower values than those recorded by the other participants;
- The differences between Roma population and the other girls are significant in 50% of tests, which has generated both common and customised programmes of social integration through motor activities for the female gender;
- The distribution of results around the mean generally reflects positive aspects, they being grouped in the area of above-average values, except for the 10x5m shuttle-run test, where this positioning to the right of the mean is not beneficial;
- Regarding the level of homogeneity, we notice that, from the somatic standpoint, the group has a high homogeneity, and in terms of motricity, it has a moderate level of homogeneity in the shuttle-run test and the Sargent test, contrasting with the strength tests, where a lack of homogeneity is recorded;
- These results reveal a young population with moderate scores from the somatic point of view and satisfactory scores with regard to motricity. In this context, we can state that the target population participating in the study shows a somatic development around the average, but with low motor potential, especially for the speed component;

- The overall results reflected in this paper raise a question regarding the quantity and quality of the physical education and sports activity.

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