sessions being the ideal weekly training for best performance, 14 specialists chose the ”d” variant, considering that over 10 training sessions are necessary per week in order to achieve best performance in women’s artistic gymnastics - fig. 10.

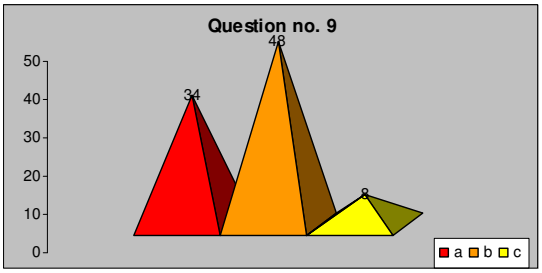


Fig. 9 The optimum number of elements

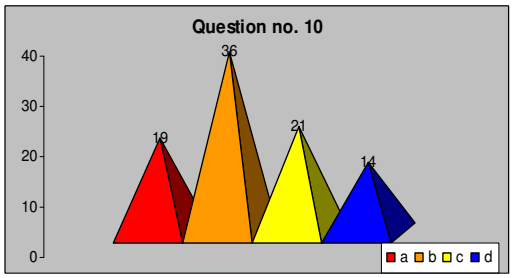


Fig. 10 Number optimal training

In conclusion, 90,3% of respondents consider it necessary planning and scheduling training gymnasts, 97,5% believe it is useful to develop a unique training program for each sports category basis, 61,4% believe that the level of training gymnasts from Romania, is satisfactory, and 73,4% of specialists believe that the performance of athletes in gymnastics will increase if the application of a unique training programs.

After analyzing the responses received, 48,1% of the specialists believe that technical training is paramount in achieving performance in gymnastics, if allocated a total of 20-30 hours of training per week in 7 structured workouts per week (43,3% specialists) with repeating elements 300-350 (57,8% specialists), with a break after 30 repetitions "(53% specialists).

**References:**


1. Bompa T. O., *Teoria şi metodologia antrenamentului,* Editura Ex Ponto, Bucureşti, 2002
2. Corlaci I., *Programarea şi planificarea în gimnastica artistică,* Editura Discobolul, Bucureşti, 2013
3. Dragnea A., Teodorescu – Mate S., *Teoria sportului*, Editura FEFS Bucureşti, 2002
4. Grigore V., *Gimnastica de performanţă*, Editura Inedit, Bucureşti, 1998
5. Nanu L., Drăgan T.M., *Manual de gimnastică,* Editura GUP, Galaţi, 2010
6. Nanu L., *Concepte, tendinţe şi orientări în perfecţionarea antrenamentului sportiv a gimnastelor junioare III,* Editura GUP, Galaţi, 2013


# KINESITHERAPY USED TO TREAT OBESITY IN WOMEN


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Obesity is a chronic condition that has affected the whole of mankind, being the determining factor in the occurrence of the risk for developing cardiovascular, respiratory diseases, liver and biliary tract diseases, disorders of the central nervous system, of the osteo-articular apparatus, but especially many forms of cancer.

From the statistical point of view, it is assumed that by the year 2025 it is likely to have a growth of 100% in the number of overweight or obese people - Brick, L.G. (1996).

This work aims to point out the influences of Kinesitherapy (Physical Therapy) in the recovery of overweight or obese individuals through the development and application of diets and exercise programs adapted to the degree of ponderability, age and disorders associated to the female included in the study.

Through the theme chosen, the work has the following ***objectives:*** to lower body fat excess, to form the habit of independent and assisted exercise, to create a positive mood and good humor by doing physical exercises, to increase the self-esteem, to improve breathing, effort and muscle tone, to form a basis for an optimal physical training and last but not least, to increase work capacity and to socially integrate the activities of the overweight and obese people.

We have designed and applied a hypocaloric diet and an experimental program of training for the experimental group, with various difficulties, over the course of 30 days, two workouts per week.

***The results*** obtained from observation and investigation revealed the passive attitude of overweight or obese individuals, compared to doing exercise caused by embarrassment and disbelief in their own forces, lack of self-esteem and disgust towards their own person, lack of capacity of effort and ease in performing everyday motor activities. After the analysis of the results recorded at the initial tests we have expressed the working hypothesis and we have developed the diet and the experimental physical training program. After having applied the diet and the experimental physical training, we had better results at the final test, showing a significant progress between the two tests; the ***conclusion*** was that exercise and a proper diet can help losing weight, improving self-confidence and self-esteem and increasing the level of general physical training.

**Keywords**: *overweight, obesity, experimental programs of physical training, diet.*

**Introduction**

As epidemics of global proportions, overweight and obesity affect more than 1 billion people on the planet. Currently, in the US, as well as in the developed countries of Europe (France, Germany and others) over 40% of the adults are overweight and obese. In Romania, according to statistics, 30 percent of the population suffers from this epidemic, determined by nutrition and lack of physical exercise. A worrying fact is that the school population are suffering from obesity, the number of overweight school children, in the European Union having increased by approximately 400,000 per year (Lăcătuş, D., Creţeanu, G., 1978).

Kinesitherapy is a priority component of obesity therapeutics because it has a role in increasing energy expenditure, reducing weight on optimal time through diets, without the risk of dietary deficiencies of mineral salts, vitamins or negative protein balance. The muscle activity activates lipolysis and unsaturated fatty acids and at the same time contributes to the correction of static changes but also of complications and diseases associated to obesity and overweightness.

Many authors, including Brick, L.G. (1996) Codreş Barnea, E. (2002) and Dobrescu, T. (2008) have come to the conclusion that exercise, expressed through physical activity of any kind (outdoor walks, jogging, sports games, cycling, swimming, aerobics, etc.) but also a controlled low-calorie diet, can ensure a long and healthy life of individuals regardless of their age, sex, level of training or job.

The assessment of the optimal weight by simply referring to the stature of the individuals, according to Broca Index, proved not conclusive enough, which is why currently the study of the body mass composition is being performed: lean mass and fat mass. Lean mass represents 88-89% of the total weight (73% water, 20.2% protein mass, 6.8%, mineral substances and 0.5% glycogen). The fat mass represents the body and energy reserve and it is made up of adipose tissue (under normal circumstances it can reach 10-15% of the total weight-in obese people it can get over 70% of the total body weight) - Georgescu, F., (1998).

**Objectives**

To attract overweight and obese people in specialized institutions (fitness centers, aerobics and Gym Clubs) for various physical activities in order to improve their health, to have a harmonious physical and aesthetic development of women, to form a healthy concept about exercise and its effects on health, to increase the capacity of effort, to improve general physical training, to increase self-confidence and self-respect, to improve physical and mental relaxation and last but not least, to acquire basic knowledge concerning eating self-control.

**The hypothesis**

In order to formulate the ***working hypothesis***, it is assumed that the application of a proper diet and appropriate exercise programs rigorously supported may have positive effects on the health of overweight and obese people, rushing the process of excess fat reduction and improving the quality of their life.

**Methods and Materials**

***a. Research Protocol***

The research was conducted at a fitness and aerobic Center in Galati, over a three-month period (September-November 2015// 30 documentation days, observation regarding the image and the magnitude of the effects of overweight and obesity on the daily life and the application of the measurements and the initial bio-motor testing; 30 days to implement the low-calorie diets and physical exercise experimental programs; 30 days for final testing application and interpretation of the data). This study was done in collaboration with M.A. medical doctor, specialist in nutrition and metabolic diseases from Galati, recommending diets after having consulted the family doctor and the medical personal files of each subject included in the experiment.

***b. Subjects***

The sample group was made up of 30 obese women aged between 20 and 30, with occupations in different domains of activity, 15 of the women, randomly chosen, forming the experimental group and the other 15 forming the control group.

***c. Groups***

The experimental group has followed a low-calorie diet and has had programs of physical exercise 3 times per week in the gym and aerobics center with a specialized instructor, and in the remaining days the exercises were done individually, while the control group just followed the diet lower in calories, not taking part in the program of Kinesiology (exercise therapy).

***d. Evaluation Tests***

10 measurements have been applied to determine the level of ***somatic development***: height (**H**); weight (**W**), thoracic perimeter (**TP**) (inspiration ($\mathbf{TP_I}$), exhalation ($\mathbf{TP_E}$), rest ($\mathbf{TP_R}$); waist perimeter (**WP**); the pelvis perimeter (**PP**); bust perimeter (**BP**); thigh perimeter (**ThP**); lower leg perimeter (**LLP**); arm perimeter (**AP**); neck perimeter (**NP**) and 4 tests to determine ***the motor capacity***: throwing a 4 kg stuffed ball (medicine ball) forward (**AMA**); from lying position face up - lifting the torso against time for 30 seconds (**A30"**); lying on the back face down- extensions against time 30 seconds (**E30"**); squats against time 30 seconds (**G30"**).

***e. Complex patterns of exercises***

After the analysis of the results of the initial tests we developed and applied low-calorie diets for 30 days, both on the subjects in the experimental group and on those in the control group-table 1.

**Table 1**
**Model of low-calorie diet**

WEEK I:

**Morning**: a cup of tea/milk slightly sweetened with honey, a slice of toast with butter;

**10 a.m**.: a small cup of tea sweetened with honey, a few salad leaves/ a glass of yogurt, a slice of toast 2-3 radishes;

**Lunch**: concentrated soup of vegetables, 100 gr. boiled potatoes, fruit juice/weak boiled fish, 100 gr. boiled potatoes

green salad;

**16:00** a cup of tomato juice/two tomatoes/two apples, a biscuit;

**Evening**: a glass of buttermilk, a slice of dark bread with butter/a glass of milk a little sweetened with honey, a slice

of toast with butter

Along with low-calorie diets, the subjects in the experimental group also followed exercise programs with various degrees of difficulty in the fitness and aerobics center, as well as activities in their spare time, using in particular exercises of aerobics associated with outdoor walks (walking and running), swimming, cycling, hiking, practicing a sport, prolonged breathing exercises, stretching exercises, auto massage etc. - table 2.

**Table 2**
**Aerobics Types of Exercises**

| **Aerobics program no. 1 for maintenance-low degree of difficulty** |
|---|
| 1 Ankle flexions, on the spot, combined with: |
| • shearing arms stretched forward down, back down and combined, 2 x 8 times; |

• shearing arms stretched forward, 2 x 8 times;
• shearing arms stretched up, 2 x 8 times;
• lifting sideways stretched arms at shoulder level, 2 x 8 times;
2. Running with knees up, 2 x 8 times;
3. Running and shearing legs stretched forward, 2 x 8 times;
4. I.P. Standing position legs apart, bent arms, hands on your hips:
• flexion and extension of the head, 2 x 8 times;
• twisting your head to the right and to the left, 2 x 8 times;
• rotating your head to the right and to the left, 2 x 8 times;
5. I.P. Sitting, supporting backwards on palms, feet raised to $45^0$:
• Legs shearing in sagittal/side position , 2 x 2 x 8 times

**Results**

As a result of **diets** and **experimental training programs** we have observed an improvement in the results of final tests compared to the results of the initial tests, with significant progress between those two tests in determining somatic indicators, especially in determining the level of physical preparation-tables 3 and 4.

**Table 3 Average values and the difference between motor indicators of the IT and FT to the experimental group and the control group**

| Group No. | EG | | CG | | EG | | CG | | EG | | CG | | EG | | | | CG | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Probe | AMA (m) | | | | A30" (reps) | | | | E30" (reps) | | | | G30" (reps) | | | | | |
| Tests | IT | FT | IT | FT | IT | FT | IT | FT | IT | FT | IT | FT | IT | FT | IT | FT | | |
| *x* | 1,7 | 3,5 | 1,5 | 1,6 | 11,3 | 23,6 | 12,6 | 11,4 | 12 | 22,9 | 11,1 | 11,2 | 9,1 | 16 | 9,8 | 9,6 | | |
| ± m | + 1,8 | | + 0,1 | | + 12,3 | | - 1,2 | | + 10,9 | | + 0,1 | | + 6,9 | | - 0,2 | | | |

**Discussions**

Following the application of diets and physical training programs with means from aerobics, it resulted that the two groups have achieved better results at the final test on somatic indicators. Thus, the experimental group has seen an average drop of 9 kg overweight body fat, while the control group had a lower average of 4 kg. In other metrics too, the experimental group has recorded significant values in terms of reducing body perimeters, thus, the perimeter of waist, bust and pelvis have 5 cm lower averages compared to the control group which presents an average of body perimeter reductions of only 2 cm. At the final testing of the motor indicators, the progress was obvious for the experimental group, showing higher average values between tests with 1.8 meters in throwing a 4 kg stuffed ball (medicine ball), 12.3 repetitions in determining the abdominal muscle strength, 10.9 iterations in testing back muscle strength and 6.9 iterations in testing the strength of their feet muscles. The control group, which agreed to follow the diet, but not to practice the exercise, presented negative average values, lower in final tests against initial tests when testing abdominal muscle strength and leg muscle strength. The progress of the experimental group was obvious both between the two tests and compared to the control group.

**Conclusions**

1. Obesity is one of the major tests of the contemporary civilization, statistics indicating a continuous growth of obesity worldwide.

2. The working hypothesis is confirmed; according to it, the application of proper diet and exercise programs rigorously supported may have positive effects on the health of overweight and obese people, accelerating the process of surplus fat reduction, improving quality of life for them.

3. Exercise and especially aerobics exercises have a role and in forming the capacity of muscular and mental relaxation, creating a good mood of the performers, while ensuring confidence and self-esteem.

4. Food diets with low calorie intake can reduce body weight, but to a small degree, if they are not backed up by physical exercise.

5. The association between diets and constant physical activities is highly recommended because it ensures weight loss and reduction of localized adiposity and improves the body's cardio-respiratory functions, increasing the capacity of effort and the specific motor skills.

6. The earlier obesity is reported, the more effective is the treatment against obesity.

**Table 4 Dynamics omatic indicators between the initial and the final tests of the experimental group and the control group**

| No. / L. măs | H (cm) | | W (kg) | | $TP_I$ (cm) | | $TP_E$ (cm) | | $TP_R$ (cm) | | WP (cm) | | PP (cm) | | BP (cm) | | ThP (cm) | | LLP (cm) | | AP (cm) | | NP (cm) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Tests** | **IT** | **FT** | **IT** | **FT** | **IT** | **FT** | **IT** | **FT** | **IT** | **FT** | **IT** | **FT** | **IT** | **FT** | **IT** | **FT** | **IT** | **FT** | **IT** | **FT** | **IT** | **FT** | **IT** | **FT** |
| **1.** | 152 | 152 | 81 | 70 | 107 | 105 | 102 | 99 | 103 | 102 | 95 | 87 | 106 | 102 | 108 | 105 | 65 | 62 | 40 | 37 | 32 | 30 | 38 | 35 |
| **2.** | 167 | 167 | 93 | 86 | 108 | 106 | 101 | 97 | 103 | 100 | 102 | 100 | 135 | 130 | 116 | 114 | 72 | 70 | 44 | 42 | 35 | 33 | 48 | 47 |
| **3.** | 163 | 163 | 90 | 80 | 109 | 105 | 103 | 98 | 105 | 101 | 100 | 97 | 118 | 112 | 107 | 102 | 75 | 68 | 44 | 43 | 35 | 35 | 39 | 38 |
| **4.** | 160 | 160 | 91 | 82 | 105 | 101 | 100 | 94 | 103 | 98 | 103 | 97 | 115 | 110 | 108 | 103 | 73 | 69 | 42 | 41 | 36 | 35 | 40 | 40 |
| **5.** | 162 | 162 | 98 | 90 | 115 | 112 | 110 | 106 | 113 | 109 | 107 | 105 | 127 | 125 | 120 | 117 | 77 | 75 | 43 | 40 | 39 | 38 | 42 | 41 |
| **6.** | 153 | 153 | 85 | 78 | 97 | 93 | 89 | 85 | 92 | 89 | 90 | 83 | 107 | 105 | 110 | 107 | 68 | 64 | 41 | 39 | 37 | 36 | 38 | 37 |
| **7.** | 162 | 162 | 92 | 80 | 107 | 103 | 101 | 96 | 103 | 100 | 101 | 97 | 104 | 98 | 115 | 110 | 65 | 62 | 39 | 36 | 35 | 32 | 37 | 35 |
| **8.** | 161 | 161 | 94 | 83 | 110 | 107 | 104 | 100 | 106 | 103 | 104 | 100 | 133 | 128 | 115 | 110 | 72 | 70 | 47 | 46 | 38 | 37 | 39 | 38 |
| **9.** | 164 | 164 | 95 | 82 | 110 | 108 | 104 | 100 | 106 | 104 | 105 | 99 | 128 | 120 | 114 | 109 | 74 | 70 | 49 | 47 | 39 | 37 | 40 | 38 |
| **10.** | 165 | 165 | 99 | 89 | 121 | 118 | 115 | 110 | 117 | 113 | 116 | 112 | 125 | 120 | 125 | 119 | 85 | 80 | 49 | 48 | 43 | 41 | 44 | 43 |
| **11.** | 164 | 164 | 93 | 80 | 107 | 104 | 101 | 96 | 103 | 100 | 101 | 96 | 134 | 128 | 115 | 110 | 70 | 65 | 42 | 39 | 38 | 36 | 40 | 38 |
| **12.** | 159 | 159 | 91 | 80 | 106 | 103 | 101 | 96 | 103 | 99 | 105 | 100 | 116 | 112 | 110 | 105 | 73 | 69 | 41 | 39 | 35 | 33 | 39 | 38 |
| **13.** | 167 | 167 | 100 | 91 | 115 | 113 | 109 | 105 | 112 | 108 | 109 | 100 | 120 | 115 | 119 | 113 | 78 | 66 | 49 | 47 | 37 | 35 | 42 | 40 |
| **14.** | 160 | 160 | 95 | 86 | 111 | 108 | 103 | 99 | 106 | 103 | 105 | 101 | 130 | 125 | 116 | 110 | 72 | 67 | 46 | 44 | 37 | 35 | 39 | 38 |
| **15.** | 164 | 164 | 97 | 88 | 114 | 112 | 108 | 105 | 111 | 108 | 104 | 100 | 128 | 120 | 118 | 114 | 68 | 65 | 40 | 38 | 38 | 37 | 39 | 38 |
| ***x*** | 161 | 161 | 92 | 83 | 109 | 106 | 103 | 99 | 105 | 102 | 103 | 98 | 121 | 116 | 114 | 109 | 72 | 68 | 43 | 41 | 37 | 35 | 40 | 38 |
| ***± m*** | - | | - 9 | | - 3 | | - 4 | | - 3 | | - 5 | | - 5 | | - 5 | | - 4 | | - 3 | | - 2 | | - 2 | |
| **1.** | 165 | 165 | 94 | 92 | 109 | 107 | 103 | 101 | 105 | 103 | 104 | 103 | 131 | 129 | 110 | 109 | 71 | 70 | 42 | 42 | 39 | 39 | 40 | 40 |
| **2.** | 158 | 158 | 90 | 88 | 109 | 108 | 105 | 104 | 107 | 106 | 106 | 104 | 128 | 127 | 114 | 112 | 73 | 72 | 43 | 42 | 40 | 40 | 40 | 40 |
| **3.** | 167 | 167 | 98 | 95 | 110 | 108 | 104 | 101 | 107 | 105 | 106 | 104 | 123 | 121 | 112 | 111 | 72 | 71 | 42 | 42 | 41 | 41 | 39 | 38 |
| **4.** | 165 | 165 | 100 | 98 | 112 | 109 | 108 | 105 | 109 | 107 | 106 | 104 | 124 | 122 | 114 | 112 | 74 | 73 | 45 | 43 | 42 | 40 | 40 | 39 |
| **5.** | 160 | 160 | 90 | 88 | 111 | 110 | 105 | 104 | 107 | 107 | 104 | 103 | 118 | 117 | 110 | 109 | 70 | 68 | 41 | 40 | 39 | 38 | 40 | 39 |
| **6.** | 161 | 161 | 92 | 90 | 108 | 107 | 104 | 102 | 106 | 104 | 109 | 107 | 118 | 117 | 113 | 112 | 69 | 68 | 41 | 40 | 38 | 38 | 41 | 40 |
| **7.** | 164 | 164 | 95 | 91 | 111 | 110 | 104 | 103 | 108 | 107 | 114 | 111 | 121 | 120 | 120 | 118 | 71 | 70 | 43 | 41 | 40 | 39 | 40 | 39 |
| **8.** | 162 | 162 | 92 | 89 | 114 | 112 | 110 | 107 | 112 | 109 | 107 | 104 | 119 | 117 | 111 | 108 | 71 | 70 | 41 | 41 | 40 | 39 | 40 | 39 |
| **9.** | 152 | 152 | 88 | 84 | 116 | 114 | 111 | 109 | 113 | 111 | 110 | 107 | 124 | 121 | 114 | 111 | 70 | 69 | 45 | 43 | 41 | 45 | 40 | 39 |
| **10.** | 169 | 169 | 100 | 87 | 120 | 117 | 117 | 113 | 109 | 115 | 116 | 113 | 125 | 122 | 121 | 119 | 75 | 74 | 44 | 43 | 43 | 42 | 41 | 40 |
| **11.** | 163 | 163 | 102 | 100 | 123 | 122 | 117 | 116 | 120 | 120 | 118 | 116 | 127 | 125 | 123 | 122 | 78 | 76 | 45 | 44 | 43 | 43 | 41 | 41 |
| **12.** | 167 | 167 | 100 | 96 | 118 | 117 | 113 | 112 | 117 | 115 | 110 | 107 | 120 | 121 | 117 | 115 | 72 | 71 | 43 | 42 | 40 | 40 | 41 | 40 |
| **13.** | 153 | 153 | 90 | 87 | 122 | 121 | 117 | 116 | 120 | 119 | 113 | 109 | 125 | 125 | 120 | 115 | 75 | 74 | 45 | 44 | 40 | 40 | 41 | 40 |
| **14.** | 164 | 164 | 95 | 92 | 110 | 109 | 105 | 103 | 107 | 105 | 106 | 103 | 132 | 130 | 111 | 109 | 71 | 70 | 41 | 40 | 39 | 38 | 40 | 39 |
| **15.** | 162 | 162 | 98 | 96 | 114 | 112 | 109 | 107 | 112 | 109 | 109 | 107 | 121 | 119 | 113 | 112 | 72 | 71 | 42 | 41 | 40 | 38 | 39 | 38 |
| ***x*** | **162** | **162** | **95** | **91** | **114** | **112** | **109** | **107** | **111** | **109** | **109** | **107** | **124** | **122** | **115** | **112** | **72** | **71** | **43** | **42** | **40** | **40** | **40** | **39** |
| ***± m*** | **-** | | **- 4** | | **- 2** | | **- 2** | | **- 2** | | **- 2** | | **- 2** | | **- 3** | | **- 1** | | **- 1** | | **-** | | **- 1** | |

**Bibliography:**

1. Bota, A., *Exerciţii fizice pentru viaţa activă,* Editura Cartea Universitară, Bucureşti, 2006
2. Brick, L.G., *Fitness Aerobics,* Human Kinetics Publishers, Hong Kong, 1996
3. Codreş Barnea, E., *Siluetă. Frumuseţe. Sănătate.* Editura Bigall, Bucureşti, 2002
4. Damian, Ş., *Stretching – secretul flexibilităţii,* Editura Corint, Bucureşti, 2003
5. Diaconescu, M., *Alimentaţia raţională,* Editura Militară, Bucureşti, 1979
6. Diehl, H., Ludington, A., *Tablete de stil de viaţă,* Tipografia Viaţă şi Sănătate, Bucureşti, 1998
7. Drăgan, I., *Sănătatea – o performanţă?,* Editura Albatros, Bucureşti, 1980
8. Drăgan, I., *Pledoarie pentru sănătate,* Editura Albatros, Bucureşti, 1983
9. Dobrescu, T., *Gimnastica aerobică-strategii pentru optimizarea fitness-ului,* Editura Pim, Iaşi, 2008
10. Dumitrescu, C., *Secretul sănătăţii-greutate corporală,* Editura PORUS M., Bucureşti, 1994
11. Fonda, J., *Women coming of age,* New York, USA, 1984
12. Georgescu, F., *Cultura fizică – fenomen social,* Editura TRITONIC, Bucureşti, 1998
13. Gheorghe, D., *Sănătate prin sport pe înţelesul fiecăruia,* FRSPT, Bucureşti, 1997
14. Lăcătuş, D., Creţeanu, G., *Obezitatea,* Editura Junimea, Bucureşti, 1978
15. Luca, A., *Fitness şi aerobică,* Editura Fundaţiei ALTIUS ACADEMICA, Iaşi, 2001
16. Macovei, S., Vişan, A., *Gimnastica aerobică de întreţinere*, Editura SPT, Bucureşti, 2003
17. Mincu, I., *Ghidul terapeutic al obezităţii,* Editura Sport-Turism, Bucureşti, 1971
18. Nanu, L., Drăgan T. M., *Gimnastica aerobică de întreţinere,* Editura GUP, Galaţi, 2012
19. Năstăsoiu, I., *ABC-ul longevităţii,* Editura Ceres, Bucureşti, 1990
20. Pateu, R., *Physical activity and public health,* Journal of The American Medical Association 273(5), New York,1995, (traducere)
21. Simion, G., Simion I., *Arta pregătirii forţei musculare,* Editura Universităţii din Piteşti, 2006
22. Stoenescu, G., *Gimnastica aerobică şi sportul aerobic,* Bucureşti, 2000
23. Suciu, A., Dumitru, G., *Ghid pentru sănătate şi condiţie fizică,* FRSPT, Bucureşti, 1997
24. Verza, E., (colaboratori), *Psihologia vârstelor,* Editura Pro Humanitate, Bucureşti, 2000
25. www.adriana.ro/ce-sport-vi-se-potriveste
26. www.eva.ro/dietafitness
27. www.genesse.ro/culturism-aerobic
28. www.idieta.ro/body/fitness/programe/fitness
29. www.indragym.ro/fitness.htm

# THE USE OF MEANS AND METHODS SWIMMING SPECIFIC FOR THE CORRECTION OF THE ATTITUDES AND THERE IS A LONGING FOR THE SHORTCOMINGS OF THE POSTURE IN CHILDREN (12 - 14 YEARS)

MIHĂILĂ RALUCA-MĂDĂLINA, IOAN ONEŢ

**Summary:**

The Work tries to present a complex program of specific means swimming for the purpose of correcting the attitudes and the shortcomings of the spine in children (12-14 years), because lately,