

## HEALTH AND PHYSICAL CONDITION EVALUATION AND KNOWLEDGE CONCERNING AEROBICS AND PILATES PROGRAMS IN THE ADULT POPULATION

GRIGORE, VASILICA<sup>1</sup>, TUDOR, MARIA<sup>2</sup>, TUDOR DORU<sup>3</sup>

### Abstract

**Purpose.** Our purpose was to evaluate the health and fitness level of adults who are willing to practice Aerobics at the gym of our University. We also wanted to determine the degree of public awareness upon the issues related to Aerobics and Pilates Programs.

**Methods.** We used two different approaches to study the proposed issues: Test Method for assessing the health and fitness level of the subjects and the Inquiry Method based on Questionnaire for determining the degree of knowledge concerning Aerobics and Pilates Programs.

**Results.** Worse aspects were reported especially in terms of Fitness Index (FI), Body Mass Index, (BMI) and Balance,

<sup>1</sup> National University of Physical Education and Sport Bucharest, ROMANIA

<sup>2</sup> University of Medicine and Pharmacy "Carol Davila", Bucharest, ROMANIA

<sup>3</sup> University of Medicine and Pharmacy "Carol Davila", Bucharest, ROMANIA

Email: tudoru@yahoo.com

Received 17.04.2011 / Accepted 11.06.2011

Physical Fitness level being low. The inquiry showed a poor knowledge on matters related to Aerobics and Pilates Programs, and particularly of their specific objectives.

**Conclusions.** Considering the findings, we believe that it is necessary a better public information regarding Aerobic and Pilates Programs and their benefits upon fitness and health.

**Key-words:** Health, Physical Condition, Aerobics, Pilates, Adults

### Introduction

Modern Society, in an amazing effervescence confronts people with new challenges every day.... " In this sense, one's attitude towards himself and hence towards health is an issue that has caused and continues to attract interest. Having good health is a dimension of quality of life " V. Grigore, D. Vasilescu, 2011).

The multitude of studies and researches conducted in recent years in different areas, highlights, in addition to many other issues, that a sedentary lifestyle causes obesity, poor body posture, a weak tone of the Core Muscles, increased Body Mass Index and fat tissue vertebral deformity, lack of mobility and flexibility, stiffness, muscular atrophy, disorders of cardio-vascular function, anxiety, etc.

Physical inactivity, along with other factors (smoking, unbalanced diet), are constant elements of modern life, inherently leading to a rapid increase in the number of people suffering from diabetes, cardiovascular disease or obesity. These diseases can be largely prevented. The preventive measures recommended by WHO are moderate physical activity for 30 minutes a day, quitting smoking and healthy eating.

Confronting sedentary lifestyle has become a governmental problem in some countries. Thus, in some developed countries a new lifestyle is

promoted by providing the public facilities for encouraging the development of population's fitness levels: creating safe routes for running, cycling, creating parks or green areas for leisure development, laws to punish smoking in public places, promoting outdoor movement in schools, communities, etc..

In this context we enroll our approach, which is trying to contribute to a better understanding of issues related to the practice of Aerobics and Pilates Programs in order to improve health, fitness level and enhance the quality of life of Adult clientele.

### Purpose:

Evaluation of Health and Physical condition level and knowledge concerning Aerobics and Pilates programs in the adult population willing to practice recreational sports at the gym of the Medical University "Carol Davila", Bucharest.

### Objectives:

1. Measuring, recording and interpreting the values of Somatic and Functional Indices to assess Health and Fitness level of the studied sample.
2. Assessing the public level of awareness regarding the characteristics and objectives of various Aerobics Programs and Pilates.

### Hypothesis:

1. Stage level of the Fitness and Health parameters of the adult population willing to practice Aerobic and / or Pilates exercise Programs is low.  
 2. Adult population does not have sufficient information on issues related to Aerobic and Pilates Programs.

**Subjects, place and duration of research:**

The study was conducted on a sample of 41 adults, female, who have expressed the desire to practice Aerobics and / or Pilates at the Gym of the University of Medicine and Pharmacy "Carol Davila" Bucharest, between September 2010 - February 2011.

**Methods:**

Tabel 4 Mobility și flexibility Rate	Age			
	20-29	30-39	40-49	50-59
Very Good	41	41	39	39
Good	36	36	35	34
Average	32	31	31	30
Low	25	25	25	24

To achieve the objectives, we used the following methods:  
 • **Tests Method** - for assessing the Health and Fitness level  
 • **Survey Method** based on **Questionnaire** - to determine the public level of knowledge regarding the characteristics, objectives and benefits of Aerobics and Pilates Programs.

**I. Assessment of physical fitness in terms of health**

What interests us in this case is the physical condition of **adults who do not practice a high level (competitive) sport activity**. In this context, the physical condition corresponds to a functional state in which different organic systems of the human body are operating at optimum level. This state corresponds to **the definition of health**, given by WHO: „Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” WHO,1948).

For assessing the physical condition we applied a series of tests, most of them inspired by those recommended by the Council of Europe for the evaluation of the health-related fitness status of the adults (sedentary or engaged in moderate physical activity). These are simple tests based on Sub-maximal effort, targeting the following parameters:

- Aerobic capacity
- Muscle Strength and Stamina
- Mobility and flexibility
- Balance

Tabel 3 Abdominal Strength Rate	Age			
	20-29	30-39	40-49	50-59
Very Good	15	15	15	15
Good	15	15	15	13
Average	15	15	13	7
Low	15	11	6	5

**Somatic Index** registered were: **Height, Weight**. We also registered the **Age** of the subjects

**Functional indices: heart rate** after effort

**1. Aerobic capacity** - was tested using the 2 km test, consisting of crossing distance of 2 km on flat ground, walking as quickly as possible without running. The time (in minutes and seconds) and heart rate after exercise are recorded. Based on these values we calculated:

- **Body Mass Index** (BMI), using the formula  $BMI = G (kg) / I (m)^2$
- **Fitness Index** (FI), using the formula:  
 $IF = 304 - \text{min.} \times 8,5 + \text{sec.} \times 0,14 + HR \times 0,32 + 1,1 \times G/I^2 - A \times 0,4$ , where HR= Heart Rate and A=Age.  
 The data were interpreted according to Tables 1 and 2.

**Tabel 1. Interpretation of body mass index** (National Institutes of Health SUA)

Value BMI (kg/m <sup>2</sup> )	Interpretation
< 16	very severe weight impairment
16 < 17	serious underweight
17 < 18	moderate underweight
18,5 - 25	NORMAL
25 < 30	moderately overweight
30 < 35	seriously overweight
35 < 40	very seriously overweight (obesity grade II)
> 40	morbid obesity, monstrous (Grade III)

**Tabel 2. Interpretation of Fitness Index**

IF Value	Interpretation
< 70	Very low
71 -89	Low
90 -110	Medium
111 -130	Good
130 <	Very Good

**2. Muscle Strength and stamina** were determined using the abdominal flexion test, recording the maximum number of executions in 30 seconds. The results were interpreted using Table 3

**Table. 3 Interpretation of abdominal strength test**

**3. Mobility and flexibility** have been recorded using the combined test of the lumbar spine and hips mobility and posterior thigh muscle elasticity by bending of the trunk from sitting. The results were interpreted according to Table no. 4.

**Table nr. 4 Interpretation of mobility test**

**4. Balance** was tested by recording the ability of maintaining for 60 seconds the position: standing on one leg, barefooted, with the other leg stretched out sideways. We recorded the number of imbalance resulting free-kick touchdown during the established time.

Interpretation was done according to Table no. 5

**II. Determining the level of knowledge**

Tabel 5 Blance Rate	Age			
	20-29	30-39	40-49	50-59
Very Good	1	1	1	2
Good	1	1	1	4
Average	2	2	3	7
Low	4	5	6	10

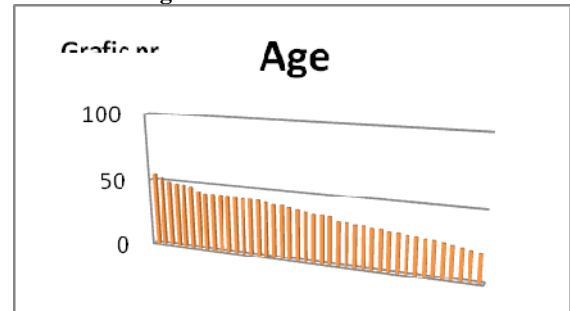
To evaluate the level of knowledge among the target audience of the aspects regarding Aerobic and Pilates Programs and their benefits, we conducted a questionnaire-based survey. The questionnaire had a total of six items.

**Results and interpretation**

Age Chart No. 1) was between 21 and 55 years, with an average of 36 years and 3 months. Age distribution was relatively balanced, with five values between 20 and 25 years, eight values between 25-30, five between 30-35, seven

between 35-40, ten between 40-45, four between 45-50 and two between 50 - 55. Highest Frequency range was at 40-45 years, with 10 cases.

**Chart no 1: Age**

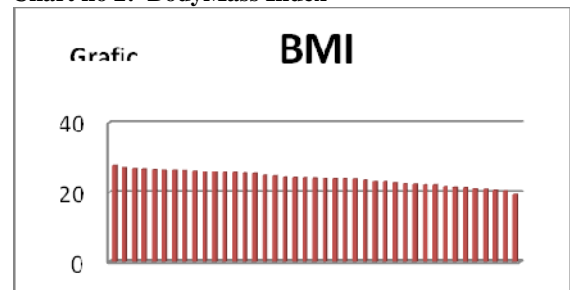


**I. Assessment of fitness level**

**1. Aerobic exercise capacity**

• **BodyMass Index** Chart no. 2) at the sample studied vary between 19.3 and 27.8, with the average **24.02**.

**Chart no 2: BodyMass Index**



The majority of values falls in the normal range (18.5 to 25) according to Table no. 1, but the average is closer to the upper value, showing a tendency to overweight of the studied sample. In fact, more than one third of subjects (15 cases, ie 36, 5%) had values over 25, falling in the overweight category. Furthermore, 9 of those (21.9%), had values above 26 and 2 (4.8%) are over 27.

In conclusion, even if the body composition of the persons in the studied sample, is generally situated within the normal range, We can see a tendency to overweight for a significant part of the adult female clientele.

• **Fitness Index** (index of physical condition)

Chart No. 3)

The fitness index distribution values very wide, (min. =40 and max.= 105.2). The **average is 81.2** reanking "Low" according to Table No. 2.

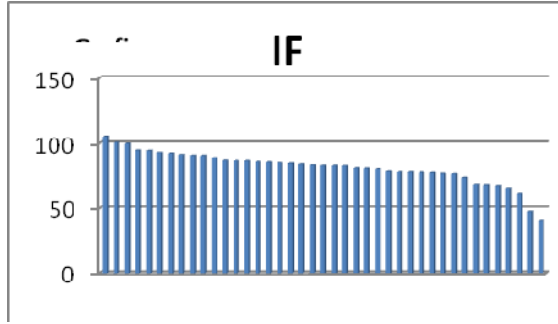


Chart no 3: Fitness Index

From the range of values, 7 results (17%) falls in the category "very low" ( $IF < 70$ ), 24 (58.5%) in the category "low" ( $71 < FI < 89$ ), 10 (24.6%) in the category "medium" ( $90 < IF < 110$ ), with **no value for the categories "good" and "very good"**. In conclusion the fitness level of the persons in the studied sample is alarmingly low, considering that 75.5% of results are below average, of which 17% very low.

## 2. Strength and muscular endurance

Abdominal muscles strength and endurance test results shows good results, according to Table 3 Average = 12.1, Minimum = 8, maximum = 16). This shows that this parameter is less correlated with the general level of fitness.

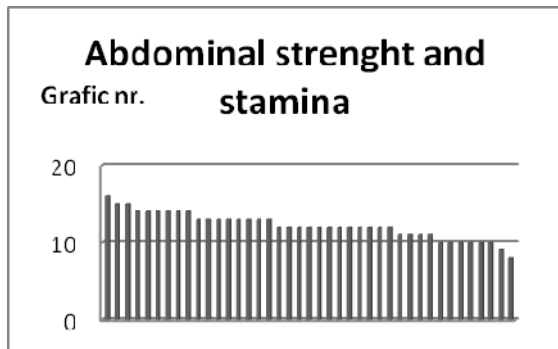


Chart no 4: Abdominal strength and stamina

## 3. Mobility and flexibility

The average at this parameter (25.4) is low, according to Table 4. The results show that 20 cases (48.7%) fall into "weak" rank, while only two results (4.87%) reach "good" level.

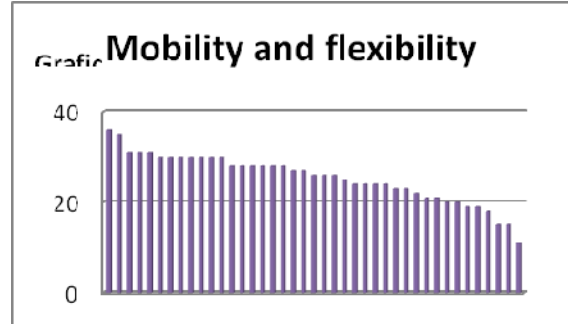


Chart no 5: Mobility and flexibility

## 4. Balance

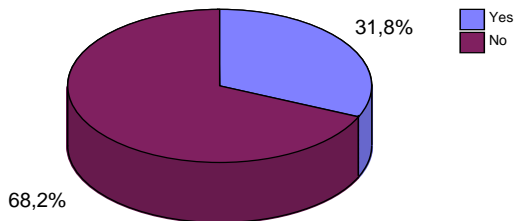
Values obtained at balance test, interpreted according to table no. 5 are generally unsatisfactory. The average of **6.5 imbalances** in 60 seconds deferred to a **medium age of 36 years and 3 months** falls within the category "low." It should be noted the asymmetric distribution of values. The average is strongly influenced by a number of 13 results (31.7%), which have values significantly higher than the general trend.



## II. Determining the level of awareness regarding Aerobic and Pilates Programs – Results and interpretation:

1. Of the investigated sample, only **31.8%** had previously practiced **Aerobics and/or Pilates**, while 68.2% answered „No”.

Did you practiced Aerobics before?



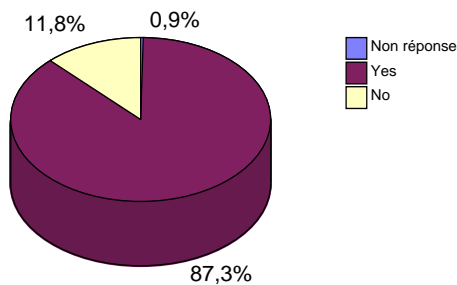
**2. Types of aerobics programs known**

We notice a low knowledge among the public. Many subjects indicated de wide term - Aerobics or the general concept - Fitness . Were often mentioned Tae-Bo 20 citations), Step-Aerobics 18 cit.), Dance Aerobics 10 cit.). Less cited were stretching 6 cit.) Yoga 5 cit.) Kangoo-Jumps 5 cit.), Zumba 5 cit.) , Mind &Body 2 cit.). Note that the answer to this question was free, open.

**3. The Pilates Method – public knowledge**

87.3% of the respondents said they heard of Pilates while 11, 8% did not heard .

The Pilates Method - public knowlege



**5. Public knowledge concerning Pilates Method Objectives**

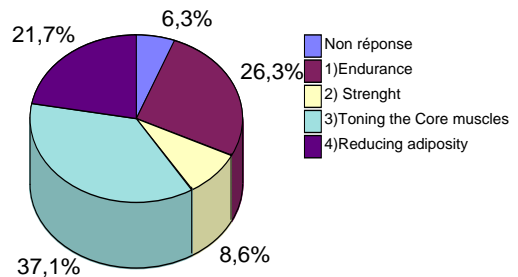
This question had four closed answers, multiple choice) and offered these options: 1) cardiovascular endurance; 2) overall strength; 3) toning deep muscles of the body (The Core), and stabilising the spine; 4) Reducing the fat and body weight .

The correct answer was option 3.

Only 37.1% of responses indicated the correct choice, That shows a poor knowledge of issues related to the main objectives of aerobics

programs and general maintenance of the Pilates Method in particular.

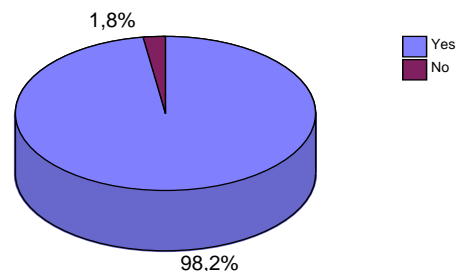
Pilates objectives - public perception



**6. The perceived connection between core toning and preventing / fighting back pain**

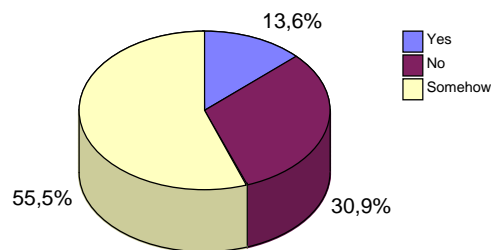
It appears that, at least on an intuitive level, adult population perceive correctly the benefits that toning the deep, postural muscles of the Core brings upon preventing and combating back pain. 92.2% . answered „Yes”.

Conection Core Muscles and lumbar pains



**7. Knowing the rules posture for a correct posture**

Knowing the rules for a corect Posture



In the knowledge of the rules for a correct posture, over half of respondents said they are aware. However, considering that 43.6% of the

respondents do not know or are not too sure, it appears the necessity of educating clientele in this matter .

### Conclusions:

- The tests regarding body composition of the persons in the studied sample (as evidenced by BMI), shows a tendency for overweight in a significant part of the adult female clientele, although average values are within normal limits.
- The physical condition of the tested persons is alarmingly low,. 75.5% of the values of the Fitness Index (FI) are below average, and 17% of them are very poor).
- The tests of muscle strength and endurance showed good results; this parameter seemed to be less correlated with the general level of fitness.
- Mobility and flexibility values are poor, almost half of the results (48.7%), ranking "low".
- The balance level is also low.
- Most respondents have not practiced Aerobics and/or Pilates before.
- There is poor knowledge concerning Aerobics and Pilates Programs, their objectives and their specific benefits upon the fitness level and health.
- At an intuitive level, the adult population clientele perceive the benefits of Pilates in toning of the deep Core muscles correctly and their effects on the prevention of back pain and lumbar disease.
- It is necessary to educate the adult clientele regarding the rules of a correct body posture.

### Bibliografie:

- CORDUN, M., 2010, *Bioenergetică și Ergometrie*, Curs Doctorat, UNEFS, București, manuscris la autor, 70-71**
- GRIGORE, V., VASILESCU, D., 2011, *Studiu privind comportamentul de risc în mediul sportiv din perspectiva calității vieții*, Conf. Științifică cu Participare Internațională, UPB, 2010**
- OJA, P., TUXWORTH, B., eds., 1995, *Eurofit for Adults, Assessment of Health-Related Fitness*, Finland: Council of Europe Publishing; 1-13**
- SUCIU, A., DUMITRU, GH., 2000, *Ghid pentru sănătate și condiție fizică*, Federația Română Sportul pentru Toți, București, România, 34-36**
- WHO PREAMBLE TO THE CONSTITUTION OF THE WORLD HEALTH ORGANIZATION** as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.