

STUDY ON THE INFLUENCE OF ALIMENTATION AND PHYSICAL ACTIVITY ON BODY WEIGHT DURING THE COVID - 19 PANDEMIC PERIOD

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Abstract: *The paper presents a study on the influence of alimentation and physical activity on body weight during the Covid 19 pandemic period. Body weight management is often difficult nowadays, as we are increasingly sedentary and therefore we fail to consume the energy resulting from eating. The methods we used were: literature analysis, questionnaire survey, graphic and tabular method. The questionnaires were completed online by 30 students from the Professional Conversion Program Physical Education and Sports and master students from the Faculty of Sciences, Physical Education and Sports. After analyzing the results, we noticed that there is no stable and decisive correlation between the diet and the increase or decrease of the Body Mass Index.*

Key words: *physical activities, alimentation, body weight, pandemic.*

1. Introduction

Managing body weight is often difficult nowadays, as we are more sedentary and therefore we fail to consume the energy we gain from food consumption. Also, the meal ritual is something we enjoy and we are tempted to consume as many foods as possible and as much as possible. Body weight regulation is directly proportional to the amount of food consumed, the nutritional behaviors they contain and the physical activities performed. Many people have drastically reduced their

physical movement also due to the fact that during this period they worked from home, without even moving to their work and back. There were also times when fitness halls, stadiums were closed, and people were allowed to leave the house only at a certain time. It is very important that the physical exercises are practiced systematically with duration of 30 - 60 minutes, 3-4 times a week. During the Covid 19 Pandemic, in some situations, one or more dimensions of health were negatively influenced, such as physical

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health, emotional, intellectual, social and spiritual health.

In order to ensure an adequate diet, there should be a balance between the body's nutritional needs and the amounts of substances brought in through the diet. The appearance of an imbalance is the result of an inadequate diet, which can have repercussions as changes in growth, work capacity and health. Currently, the nutritional needs of the population have changed as a result of changing the way of living and changing working conditions, so energy consuming decreased in the detriment of increased nervous demand. As a result of the development of the food industry, modified foods have appeared compared to natural raw materials, the result of these industrial processes producing in many cases, imbalances, due to the concentration of some nutrients and the removal of others [2].

We, Romanians eat too much of almost anything: too much sugar, too much fat and too much salt. We consume too many calories. And on top of that, we also eat too many times a day. This "abundance" helps laying the foundation for coronary artery disease (which nourishes the heart), strokes, hypertension, arthritis, diabetes with onset in adulthood, obesity and several types of cancer. These diseases are responsible for three quarters of all deaths. And their appearance, as we have already said, is related to the lifestyle, more precisely to the way we eat [4].

If we eat the same amount of calories that we use, our body weight will remain the same. If we eat more calories than we need, we will gain weight. To lose weight we need to burn more calories than we eat. [9].

The processes of industrialization, urbanization and mechanization specific

to today in many regions of the world lead to changes in eating habits (consumption of foods with high caloric and lipid density and low fiber content) and a sedentary lifestyle that promotes the spread of obesity in the population, this being associated with an increased risk for the occurrence of type 2 diabetes, hypertension and other cardiovascular diseases. On the other hand, results that prevention and control programs dedicated to all these diseases will be able to find many common elements, which can facilitate their long-term implementation in the population [5].

Exercise is an important part of maintaining weight. It should not be too demanding, but enough to create a slight feeling of shortness of breath - fast walking, for example.... The optimal weight loss is two kilograms per week. If you lose weight too fast, you can also lose tissues that are not associated with excess weight (non-fat tissues). This will make harder to maintain the new weight [9].

Regular physical activity has a protective action against the risk of obesity while a sedentary lifestyle promotes obesity. About 30 minutes a day moderate physical effort is enough to prevent obesity. To prevent a return to overweight after weight loss, a moderate physical effort of 60-90 min per day is required [1].

We discover every day that active people have more fulfilled lives. They have more energy, are more resistant to disease and are permanently in good physical shape. They are much more confident in their own strengths, less depressed and often, even in old age, very energetic about new projects [7].

In order to function normally, the human body needs a constant supply of energy, which is achieved through food

principles. Being a homoeothermic organism, which do not have the capacity to store heat and the possibility of transforming another form of external energy, the only and indispensable source of human survival remains the energy obtained by dissolution the chemical bonds in the structure of food. The existence of an optimal nutritional state promotes the growth and development of the body, maintains the state of health, allows the daily activity and participates in the protection of the body against various aggressions or diseases. [3].

The daily caloric requirement varies depending on age, sex, body mass, hormonal status, daily activities, and climate. A sedentary person has a caloric requirement of 25 calories per kilogram of mass (the total being approximately 1500-1900 kcalories / day), and an active person - of about 35 kcalories per kilogram of mass (2100-2700 kcalories / day) [3].

Table 1 shows the estimated caloric requirement, by age, sex and level of physical activity (for weight maintenance) [6].

Table 1

The estimated caloric requirement, by age, sex and level of physical activity (for weight maintenance) according to [6]

Age (years)	Sex / Physical activity level					
	Male			Female		
	Sedentary	Moderately active	Active	Sedentary	Moderately active	Active
16-18	2400	2800	3200	1800	2000	2400
19-20	2600	2800	3000	2000	2200	2400
21-25	2400	2800	3000	2000	2200	2400
26-30	2400	2600	3000	1800	2000	2400
31-35	2400	2600	3000	1800	2000	2200
36-40	2400	2600	2800	1800	2000	2200
41-45	2200	2600	2800	1800	2000	2200
45-50	2200	2400	2800	1800	2000	2200
51-55	2200	2400	2800	1600	1800	2200
56-60	2200	2400	2600	1600	1800	2200
61-65	2000	2400	2600	1600	1800	2000
66-70	2000	2200	2600	1600	1800	2000

* The recommendations are based on the equations of calculating the caloric requirement, using the average weight and height for age and sex. For adults, it is considered a height of 178 cm and a weight of 70 Kg for men, and a height of 163 cm and a weight of 57 Kg for women. In the case of adolescents, the reference weight and height are variable.

** The recommendations do not apply to pregnant or breastfeeding women.

The loss of excess weight must be done progressively, in order to not disturb other body functions. Maintaining weight within normal limits is the guarantee of the absence of obesity and the diseases caused by it (arteriopathy, coronary heart disease, hypertension, diabetes, etc.) [8].

2. Material and Methods

The purpose of the study was to determine the influence of diet and physical activity on body weight during the Covid - 19 Pandemic.

Subjects: 30 students in the Professional Conversion Program Physical Education and Sports first year and master students from the Faculty of Sciences, Physical Education and Sports.

Methods: analysis of the specialized literature, questionnaire survey, graphic and tabular method. I used the method of the questionnaire due to the pandemic of Covid-19, which imposed the development of online teaching activities, a situation that prevented the physical interaction between me and master students / students. The questionnaire included 16 questions, of which, in the present paper, only questions 3, 6, 7, 8, 9, 10, 12, 14 and 16 were analyzed and interpreted, the rest of the questions being the subject of another research.

3. Results and Discussions

In order to achieve the proposed goal, we developed a questionnaire consisting

of 16 questions that was distributed to a number of 30 subjects.

In order to be able to quantify the results, the answers to some questions were scored according to the correlation of the answer with the value of the Body Mass Index.

To question no. 3 - What is the time interval in which you usually serve dinner? - the answer "a" is denoted by 1 point; "b" - 2 points; "c" - 3 points; "d" - 4 points.

To question no. 6 - What foods do you prefer for snacks between meals? - the answer "a" was marked with 1 point; "b" - 2 points; "c" - 3 points; "d" - 4 points.

To question no. 7 - What percentage of your diet consists of meat and cold cuts? - ,, a " = 5 points; "b" = 4 points; "c" = 3 points; ,, d " = 2 points; ,, e " = 1 point.

To question no. 8 - What percentage of your diet consists of milk and milk products? - ,, a " = 5 points; "b" = 4 points; "c" = 3 points; ,, d " = 2 points; ,, e " = 1 point.

To question no.9 - What percentage of your diet consists of vegetables and fruits? - ,, a " = 1 point; "b" = 2 points; "c" = 3 points; ,, d " = 4 points; ,, e " = 5 points.

The purpose of scoring the answers was to determine the existence of a correlation between the sum of the results of the 5 questions (3, 6, 7, 8, 9) and the Body Mass Index (fig.1). Where the answer was multiple, the score obtained was determined by the average of the answer points (example 1.5). At the same time, when drawing the conclusions, the answers to question 14 - What types of physical activities do you do? and question 16 - In the last year, have you tried to do something to lose weight or gain weight?

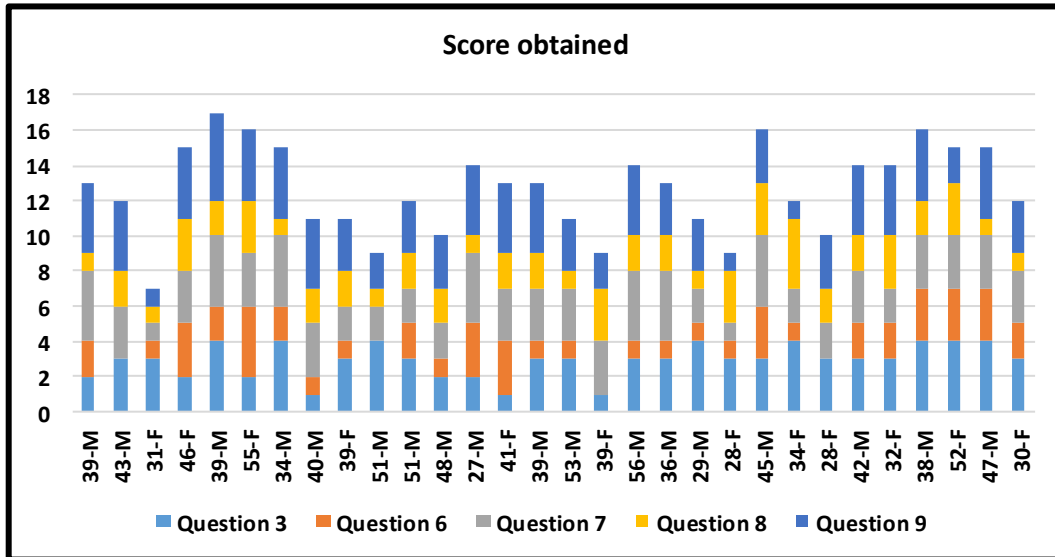


Fig. 1. Graphic representation of the answers to questions 3, 6, 7, 8 and 9

In table 2 are represented the answers to these questions as well as to question no. 10 - Did you gain weight during the Covid 19 Pandemic? The affirmative answer was marked with 1 point and the negative answer with 0 points. To question no.12 - Do you consider that

during this period you had a sedentary life?, the affirmative answer was marked with 1 point and the negative answer with 0 points.

Table 2

Answers to questions 3, 6, 7, 8, 9, 10, 12, 14 and 16 in the questionnaire

Subject											
Age-Gender	3	6	7	8	9	Total	IMC	10	12	14	16
39-M	2	2	4	1	4	13	29,95	0	0	a,e	d
43-M	3	1,5	3	2	4	13,5	33,44	1	1	a,c	c,d
31-F	3	1	1	1	1	7	17,3	0	0	a,b,c	d
46-F	2	3	3	3	4	15	23	0	1	a,b,c,d	d
39-M	4	2	4	2	5	17,32	32	1	1	a,d,f	d,e
55-F	2	4	3	3	4	16	27,68	1	0	a	a
34-M	4	2	4	1	4	15	24,42	0	0	a,c	d
40-M	1	1	3	2	4	11	32,65	1	1	e	d
39-F	3	1	2	2	3	11	20,34	0	0	a	d
51-M	4	1,5	2	1	2	10,5	30,72	1	0	a,b,d	d
51-M	3	2	2	2	3	12	26,08	0	0	e	a

Subject											
Age-Gender	3	6	7	8	9	Total	IMC	10	12	14	16
48-M	2	1	2	2	3	10	32	1	1	a	d
27-M	2	3	4	1	4	14	23,45	0	0	e	d
41-F	1	3	3	2	4	13	29,1	0	1	a	d
39-M	3	1	3	2	4	13	24	0	0	a	d
53-M	3	1	3	1	3	11	33	1	0	a	d
39-F	1	1,5	3	3	2	10,5	35	1	1	a	a
56-M	3	1	4	2	4	14	30	0	1	a	c
36-M	3	1	4	2	3	13	24,78	0	0	e	d
29-M	4	1	2	1	3	11	27	0	1	e	c,d
28-F	3	1	1	3	1	9	22,84	0	0	e	d
45-M	3	3	4	3	3	16	26,03	0	0	e	d
34-F	4	1	2	4	1	12	21,02	0	1	a	d
28-F	3	1,5	2	2	3	11,5	20,68	0	0	a,b,d	d
42-M	3	2	3	2	4	14	28,45	1	0	a	d
32-F	3	2	2	3	4	14	33,15	1	1	a	a,c
38-M	4	3	3	2	4	16	29,18	0	0	a	d
52-F	4	3	3	3	2	15	29,1	1	0	e	d
47-M	4	3	3	1	4	15	28,45	0	0	a,c	d
30-F	3	2	3	1	3	12	27,2	0	0	a,e	d

After analyzing the results, we noticed that there is no stable and decisive correlation between the diet and the increase or decrease of the Body Mass Index (figure 2).

The variation of the Body Mass Index largely depends on the amount of energy consumption following physical activities, genetic inheritance, health, medication for various conditions, etc. Example: Subject 39 F, a 39-years-old woman who scored 10.5 points on the diet has a BMI of 35. This example clearly demonstrates that in addition to diet there are a multitude of

other factors that can influence the weight grow. Another example would be the subject 46 –F, a 46-years-old woman who obtained a score of 15 points in the calculation of diet has a BMI of 23, a value that places her within a normal body weight. Basically, the woman in the second example, although she has a score in terms of diet about 50% higher than the first, has a much lower BMI. Neither of the two women taken as an example performs any physical activity other than walking.

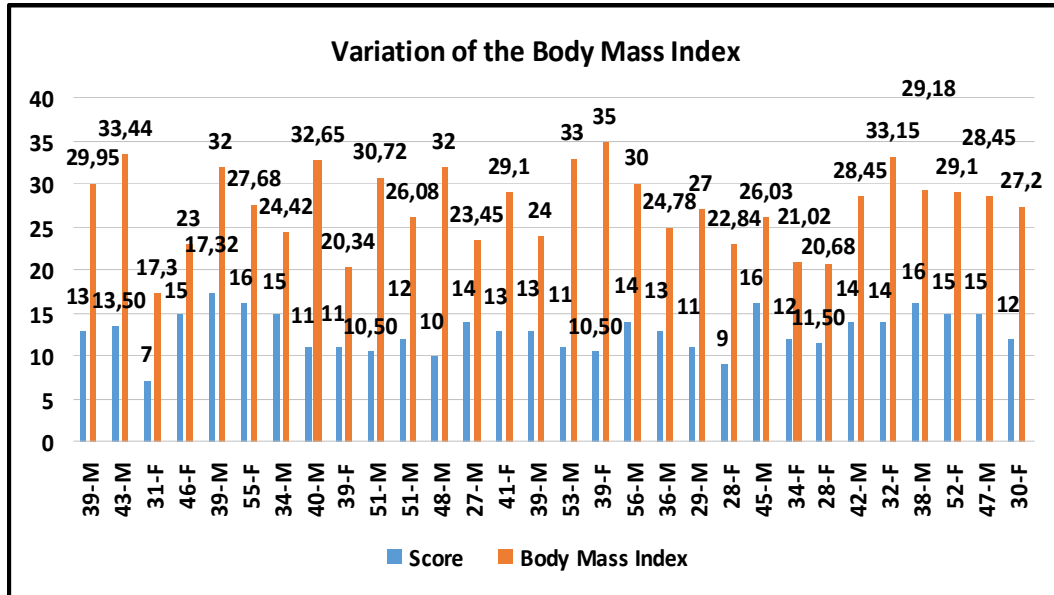


Fig. 2. Graphical representation of the variation of the Body Mass Index

Correlating the answers to questions 10 and 12, we found out that 6 subjects had a sedentary life in the last year and gained weight; 5 subjects gained weight although they did not have a sedentary life, 5

subjects were sedentary but did not gain weight, while 14 subjects did not change their lifestyle and did not gain weight during this period (figure 3).

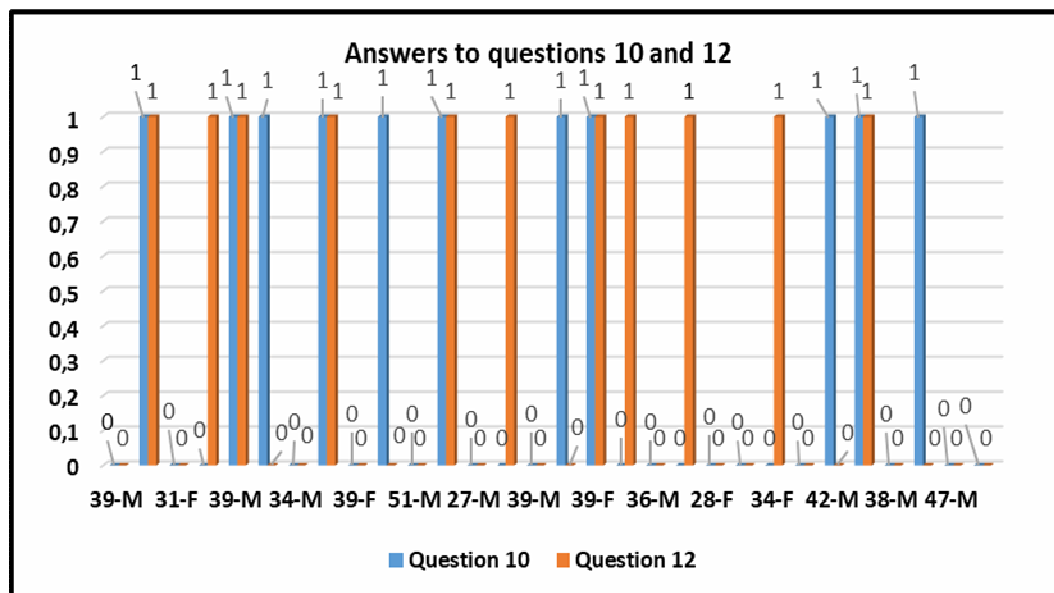


Fig. 3. Graphic representation of the answers to questions 10 and 12

3. Conclusions

-Universally valid prescriptions cannot be used to maintain a normal body weight (BMI between 25 and 30), and must be individualized for each person, taking into account several aspects, such as genetic inheritance, health, daily medication, smoking, alcohol consumption, stress, etc. To these aspects must be added an individualized program of physical activities that takes into account the excess weight, the person's lifestyle (sedentary, moderately active or active), medical conditions and the social environment to which he belongs.

-Although the period of the Covid 19 Pandemic caused major changes in social life, work at home, restrictions on travel for various purposes (trips, hiking, vacationing, etc.), we found out that 46.66% of the study subjects had no changes in lifestyle and body weight.

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