



**Republic of Albania**  
**Sports University of Tirana**  
**Faculty of Movement Sciences**  
**Third Level of Doctoral Studies**

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## **Doctoral Thesis Summary**

**Field of Study:**

**“BIOLOGY AND PHYSIOLOGY OF EXERCISE”**

**TOPIC:**

**“NUTRITION HABITS AND PHYSICAL ACTIVITY IN 12-14  
YEARS OLD SUBJECTS”**

**Doctoral Student:**

**M.Sc. Elton SPAHIU**

**Scientific Supervisor:**

**Prof. Dr. Dhimitraq STRATOBËRDHA**

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**Abstract**

A sedentary life characterized not only by a low level physical activity but also by an increase in inactivity poses a significant risk factor for the development of obesity especially for children (Cooper, K.H. et al., 1976). This physical activity tends to diminish during the age of 10 especially in girls (Pate, R.R et al., 1997). It is now widely believed that a significant reduction in daily physical activity combined with diet rich in fats and sugars is the two main factors contributing to the progressive growth of obesity prevalence (Cousins, J.H et al., 1992). Given the above, we think that there is a high degree of co-ordination and interaction of dangerous behaviors among the young people of Tirana. We also think that the distribution of dangerous behaviors among young people in Tirana is related to age, gender and physical activity.

The main methodology used to accomplish this study was that of the interview, through structured questionnaires, designed specifically for this purpose. The questionnaire consisted of 25 questions and is based on questions made by the European HBSC standardized program in order to be comparable to studies of this nature, made in different European countries. For the selection of the sample, three schools were randomly assigned. The subjects that participated in this study were 100, of which 50% male 50% female 12-14 years of age.

The subjects underwent anthropometric measurements of fat percentage (five drops of fat mass) according to Jackson & Pollock (Jackson, A. S., & Pollock, M.L. 1978; Jackson, A. S., et al., 1980). The protocols are specially designed for each group. It was determined to follow dietary diet for both groups, while for the experiment group was determined to have a training program where the training frequency was 3 times a week and the duration was 60 minutes.

While for the control group there was no intrusive exercise program but subjects were asked to provide information on the type of physical activity they would perform during this period. Morpho-functional parameters were also evaluated by appropriate tests such as strength, equilibrium, flexibility, coordination, basal metabolism and VO<sub>2</sub> max. The program proposed by this study consists of the training of the control group and the experimental group where the main focus was on the latter (6 months after the first test). The Statistic Analysis was performed using IBM SPSS Statistics as a working software environment. The statistical techniques used include: general descriptive analysis, evaluation of data dissemination, and search hypothesis search through differentiation techniques between groups using t- test. T-tests were used to identify the effect of the training plan applied to the experimental group compared to the control group using the comparison technique of the VO<sub>2</sub> variables averages between the 2 groups

The results showed that the percentage of fat varied between the two groups in favor of the experiment group. This group has a total decrease in the percentage of fat compared to the other group, corresponding to changes in VO<sub>2</sub> max 70%, especially at the thigh level we have a drastic decrease compared to other points because the foot receives and more parts in physical activity, indicating the importance of physical activity in the changes required in the study.

If in other areas we have a decrease of 10-12% at the level of thighs we have decreased by 25%. The independent t-test results for the dependent variables "VO<sub>2</sub> max" ( $t(98) = -5.45$ ,  $P < 0.0005$ ) showed a statistically significant difference between the experimental and control groups. We conclude that a higher average for "VO<sub>2</sub> max" was detected in the experimental group compared to the control group, the t-test results show that a statistically significant difference ( $p < 0.05$ ) between the groups for the dependent variables "VO<sub>2</sub> max". Consequently we conclude that in the experimental group, the applied training plans have had an effect on improving the "VO<sub>2</sub> max".

The independent t-test results for the dependent variable "VO<sub>2</sub> max rel. Load 70%" ( $t(98) = -3.28$ ,  $P = 0.001$ ) showed a statistically significant difference between the experimental and control groups. We conclude that a higher average for "VO<sub>2</sub> max rel. Load 70%" was detected in the experimental group compared to the control group, the t-test results show that a statistically significant difference ( $p < 0.05$ ) is tested between the groups for the dependent variables "VO<sub>2</sub> max rel. Load 70%".

Consequently we conclude that in the experimental group, the applied training plans have had an effect on improving "VO<sub>2</sub> max rel. Load 70%". After 6 months there was a difference in the ratio of those who ate out with those who ate at home, 78% of those who ate at least two to three meals after 6 months went down to 30%. Women and men at all ages respond with NO use of strong alcoholic beverages such as brandy, cognac and fernet.

This proves the fact that they drink occasionally from wine or parents' beer in their home. The HBSC shows that in Europe this phenomenon comes as a result of the curiosity to test the tobacco, which in our youth is realized at the age of 13 for men and 14 for women. But as far as we can see from our data this phenomenon is smaller than the European average. The use of alcohol as a dangerous behavior decreased from 12% to 3%, almost 87% of individuals began to look for quality food. Most children ate dinner each day with their parents even though the report declined as the age grew. It was noted that those who use alcohol more are boys at all ages, compared to women. 70% of respondents would have difficulty changing their eating habits if they would recommend it to 30% who would not have difficulty changing their eating

habits if they would recommend it. Meanwhile, it is noticed that the first tested groups had nearly 70% of their meal meals.

The breakfast meals are of particular importance to the health of the child, and at the age of 12 we look at both male and female careers just as much as Europeans. At the age of 13 and 14 years this figure falls. This is explained by the fact that up to 12 years of age have greater dependence on the family. Further studies are needed to validate the situation at the country level and to understand its causes because in this study the duration of testing was only 6 months and changes in individuals often require a longer time to be fully evaluated.

These should be followed by specific interventions with a view to increasing the degree of parenting awareness of their major role in their impact on children and laying the groundwork for a healthy lifestyle.

**Key words:** *Nutrition habits, physical activity, basal metabolism*

## **Introduction**

### ***General description***

Nutrition and physical activity Numerous concerns are repeatedly expressed regarding the amount of time young people spend in front of TV screens (AAP, 2001) and the impact it has on physical activity levels. Nowadays, when technology has become a part of the first children, this is also the case with various studies where it appears that the time spent with technological equipment ranges from 3-5 hours a day, this is accompanied by an uncontrolled consumption of potato chips, popcorn, carbonated drinks and other unhealthy foods that we are dealing with with inactivity are one of the main factors of nutrition and childhood obesity. There is an ever-growing trend that kids spend together with meals and spend too much time watching TV or using different computer or video games, this is almost one third of children and adolescents (Baban et al., 2011). Similarly, the use of computers, which has grown rapidly over the last decade, is another known sedentary leisure activity that is replaced by physical activity by young people. Some studies indicate that excessive use of the computer has a negative effect on people's well-being (Kraut R et al., 1998). In addition, the number of hours spent doing homework at school further limits the time available for pursuing leisure activities. The rising concern is that increasing the level of sedentary activities reduces energy, hence the energy intake remains unchanged resulting in increased obesity and obesity in childhood and adolescence (Dietz WH, & Gortmaker SL, 1985; Guan-Sheng MA et al ., 2002). Obesity in children can be caused by a small energy imbalance over time (Dietz W., 1991). As a result, health problems such as diabetes, cardiovascular disease, lung complications and psychosocial problems can be caused (Ebbeling CB et al., 2002).

Also messages that are sent from the brain and go to each body and vice versa require more fuel. If it were not so, we would not go back to sleep when we pressed our arm, we would not wake up when our ears heard the bell, we would not defend ourselves when we smelled the burning wind or covered when the window opened. Interestingly, some studies show that physical activity is low in obese children compared to non obese (Haskell, W.L et al., 1980), and this may be the cause or consequence of obesity.

If none of the parents is obese, the risk of children being obese may be less than 10%. If one of the parents is obese, the risk goes up to 40%, and if both parents are obese, the child's chances of being such are approximately 80%. In the children the greatest influence on behavior

obviously comes from parents. An early study that measured the RMB (Basal Metabolic Rate) and the energy received in children aged 3-4 years revealed that children who had at least one obese parent consumed less energy but also spent less of it, especially in physical activities compared to those who did not have obese parents. (Guillaume, M et al., 1997). Additionally, we must understand that the body is truly a trillion cell co-operative colony where each one needs an existence and energy, producing 100,000 chemical reactions or maintaining constant body temperature.

However, studies say that today the influence of parents' eating habits is thought to have a greater impact on the way food is served than on the way and choice of food (Kann, L. et al., 1998). All this unstoppable and involuntary energy used to sustain life at its basic levels is known as the basal metabolism name. The pace or speed with which he goes is called RMB. Cross-sectional studies that compare obese to obese individuals have discovered that obesity is associated with a high absolute energy consumed with low respiration of insulin resistance, with a high activity of the sympathetic nervous system, and with a rise in concentrations of leptin plasma (Ravussin, E., and B.Swinburn., 1992). This rate can be measured, and its measurement can provide medical information about the functioning of the body (an example may be the functioning of the thyroid gland) secretion of the hormone which helps to administer the metabolic rate. It is now widely believed that a significant reduction in daily physical activity combined with diet rich in fats and sugars is the two main factors contributing to the progressive growth of obesity prevalence (Cousins, J.H et al., 1992). A sedentary life characterized not only by a low level physical activity but also by an increase in inactivity poses a significant risk factor for the development of obesity, especially for children (Cooper, K.H. et al., 1976). This physical activity tends to diminish during the age of 10 especially in girls (Pate, R.R et al., 1997). And recently this physical activity can increase the muscular size, the main RMR factor with long-term consequences for the energy balance, and this is very significant for the development of the child in general as well as in the quality of his life in particular (Pate, R. R et al., 1994). Also, encouraging the performance of a larger amount of moderate and high intensity exercises can be a smart way to tackle the problem, such as tracking the TV, which is related to obesity (Griffiths, M. & PR Payne., 1976). Nowadays, family, parents, their education, general culture, income per capita have an ever more decisive role in educating healthy behaviors and eating habits. Indeed, school and society have a small impact on this age category, but still in the Albanian society the influence of the family and in the concrete case of the parents is fortunately still decisive for children and perhaps even for adolescents.

Food decision making, including purchasing, transformation, service, consumption and elimination, interacts with the family and social environment to determine food choices and model family thinking (Ardyth M et al., 2009). As we highlighted above, the educational and cultural level of parents is decisive for children, but are we sure that parents are really correct in ways of stimulating their children for a healthy nutrition way? Would it be better to have a fruit, fruit juice or dessert? In a study, children were given to drink their favorite fruit juice and in return were allowed to play in an attractive playground for them (BIRCH, L., 1999). Although parents use this method to encourage their children to eat vegetables, the evidence suggests that this could lead to even more children's consent to sweets, since pairing of two foods results in a more positive view of the food that is given as "reward" rather than for "healthy" food (Brown, R & Ogden, J., 2003). We have emphasized that obese parents increase propensity for obese children, but it is also worth noting that if parents are regular consumers of fruits and vegetables, children will also have high propensity for their children and their customers. One of the strongest indicators of the amount of fruit and vegetable consumption by children is the amount consumed by parents (Cooke, L., 2004). The parents' continuous intervention on the way of feeding is to some extent positive, but if that is going to continue, it will lose the child's ability to act and become aware of eating and healthy behavior. Children should gradually grow to make decisions about nutrition, quantity, variety and everything related to their weight and visual aspect that becomes very important in adolescence, otherwise the permanent dependence on parents' advice would make them incapable for decision-making in the continuity of life. Parents' continuous intervention does not produce the ability to regulate the diet itself, but causes negative self-esteem, a greater weight gain of 5 to 11 year-olds (Birch L.L et al., 2001). While ancient Rome nobles drank the most favorite meat, ordinary people consisted more in cereal-based diets, like small loaves in cereal soup dishes. For this category was a ruthless chance to break the monotone diet. Stronger, famous slaves and criminals could be trained to become gladiators. During the exercise, especially one night before their test at the pile of sand, they gave meat to make them stronger. Gladiators (today's sportsmen) and their coaches still try to agree, except that they are already "scientific" and refer to meat on training tables like protein. Recently, when Olympic athletes were interviewed, most people said they needed to eat differently from other people. Usually they take extra protein, others even say they can not take a lot of food and so they need to take special protein pills and capsules. Contrary to what the people believe, food specialists found that heavy exercises require less protein. Cross country skiing essentially requires the same amount of protein as well as horse racing from 22 to 53 miles per day for relaxation days. But is not that eating more

protein makes the body with more muscle? No. The growth of the muscle is determined by normal body growth, inheritance, or exercise. What we eat only simply provides nutrients for growth and when we come to more substantive issues of nutrition problems such as false ad valorisation, the practical balance of diet, the efforts to lose weight, the misconceptions are far deeper.

Clearly, in matters of food and health, a large majority of us are guided not by the facts but by the illusions (especially after the 90s). Some of these illusions are ancient. From the earliest times, man has considered the food and the mystery that accompanies him as part of his myth, culture, and religion. If we turn to the history of mankind, we find a support to a relationship between what we eat and what we are, that food can become part of us and can change us. Some facts about food are obvious, little science knows that in general we feel good when we eat and when we are hungry. People learned early that those who have wholesome food are less likely to get sick. Indeed, historically doctors and scientists would agree on a basic food definition as the study and its effects on the health, development and performance of the individual.

Food studies from an early culture remain a very realistic issue. The first problem is to identify potential sources of food, and to learn what is safe and what is dangerous. It is important to recognize which plant is safe, which is simply plant, and which is decorative. Some primitive peoples believed that food quality could be transmitted to nutrients. People in the Pacific Islands, Aru and Buru believed that a good way to get quick is to eat a dog, as well as American Indians believe that eating animal genitals becomes more powerful, or some African tribes believed that eat fresh lion's flesh you become stronger and the opposite of rabbit meat. Even in our early culture, if we were eating the chicken heart our fathers thought that you could be cowardly. For over two decades, food has been seen as a dominant force in medicine. Medical science is still slow to know the realities of nutrition. For centuries, two schools have dominated the medical school, where food was seen as the foundation of health and underlying diseases. One school is represented by Hippocrates, "The Father of Modern Medicine" from where, Aristotle shows the theory of Hippocratic Diseases and the concern about the amount of food received by saying the following: "Because of the amount of food taken, either its variety has become difficult for the digestive tract, the unprocessed remains are the result produced and when the things that are taken are of many kinds, they mix with each other in the abdomen, there is a difference in the remnants and from the remnants of the gases, that being added brings diseases".

This was the thought of nutrition for 20 centuries. There were also ideas about temperature, hardness and color. Again Hippocrates in the Greek Regimen in Health, gives advice on how to nurture in warm weather. "In summer wheat bread should be soft, soft drinks and in large quantities, as well as meat in all boiled cases." When we follow the above recommendations, then the body may be fresh and gentle. Although it is thought that the increasing popularity of sedentary activities leads to an inactive generation, there is evidence that those using electronic media at a higher level are more physically active than those who use it at a higher level low (Ho SMY & Lee TMC 2001; Marshall SJ et al., 2002). Moreover, some studies show a positive correlation between intense use of computers and academic success, self-confidence, and physical social activity (Ho SMY & Lee TMC., 2001). As mentioned above, the most delicate age is adolescence where nutritional physiological needs increase and the consumption of a nutritional quality diet is particularly important (Dwyer JT., 1993). WHO acknowledges that young people who eat healthy at the beginning of their life are more likely to do so during maturation, thus leading to a decrease in risk for chronic illnesses such as cardiovascular disease, cancer, diabetes and osteoporosis (WHO 2003, 2004; Pirouznia M., 2001). A balanced and appropriate diet during childhood and adolescence is possible to reduce the risk of immediate health problems, such as dental caries, anemia, increased delay, overweight and obesity. Eating patterns are also important exmp, morning avoidance leads to early fatigue and affects learning (Pollitt E, Mathews R., 1998). Those who avoid breakfast are also more likely to consume high fat foods and low fiber content during the rest of the day (Resnicow K., 1991). In addition, morning consumption, especially with fortified cereals, is related to improving the overall nutritional state (Ruxton CH, Kirk TR, 1997), and young people who consume at least two meals a day receive a diet more densely large nutritional substances (Siega-Riz AM et al., 1998). Social factors have a great influence on the diet of an individual especially during adolescence. Eating habits among young people reflect the weakening of family influence and increased peer influence on food choice and nutrition patterns. Changes in eating habits at this age may be related to the need to express freedom from parental control and identity falsification (Truswell AS, Darnton-Hill I., 1991; Thomas J., 1990). This independence is noticed in the consumption of food outside the home or outside the school; this type of nutrition often involves fast food (Greenwood CT, & Richardson DP, 1979). Children and adolescents are also heavily influenced by marketing or advertising. Another influence on nutrition habits is cultural pressure, prevalent in industrialized countries, to have a so-called ideal body shape. The desire to be in the right shape and not obese can be of particular interest to young people

and this may have a significant effect on body image, body assessment, and self-esteem. Types of dietary meals and meals throughout adolescence can lead to a reduction in the consumption of fruits and vegetables, which are important sources of carbohydrates, vitamins and minerals. A rich and regular consumption of fruits and vegetables may reduce the risk of developing a chronic degenerative disease. Drinking and confectionary consumption, which contains many calories, does not match the current dietary guidelines (Harnack L et al., 1999). Moreover, it is thought that the consumption of sugary drinks is related to the increase in obesity spread (Ludwig DS et al., 2001). Adolescence is considered as a period of relative health and low mortality and period when health changes are minimal (Goodman E., 1999). It is also a period of tremendous changes from a physical, psychological, economic and social point of view of health behavior. Behavior that compromises, maintains, or promotes childhood and adolescent health is related to short-term and predictive health and health outcomes (Williams CL et al., 1995; Irwin CE et al., 2002). The patterns of behavior determined at the beginning of life are usually preserved up to an adult age. Moreover, compromised health behavior can indirectly affect the educational engagement and psycho-social development (Koivusilta L et al., 2003).

## **Hypotheses**

### **We think that:**

- *There is a high degree of association and interaction of dangerous behaviors among young people of Tirana city.*
- *The distribution of dangerous behaviors among young people in Tirana is related to age, gender and physical activity.*

## **The intended purpose**

### **Improve the physical, mental, spiritual and social health of young people.**

- This study aims to shed light on the most dangerous and problematic behaviors of young people in the Tirana district and can contribute to local intervention strategies and programs at the level of health centers and communities, both in the public and private sector.
- The study of dangerous behaviors among young people is recommended by the WHO and has been applied and continues to be successfully applied in the USA and Europe.

## **Objectives of the study**

1. Determining the prevalence of dangerous behaviors among young people. 2. Categorized categorization of dangerous behaviors among young people. 3. Observing the various trends and factors that determine or influence dangerous behaviors in young people. This systematic and comprehensive observation of dangerous behaviors among young people is characterized by:
  - Determining the prevalence of dangerous behaviors,
  - Determining their timely performance,
  - Determining the interaction between them,
  - Collection of data at local and wider level,
  - Collection of data by categories of youth.

## **Methodology**

The main methodology used to accomplish this study was that of the interview, through structured questionnaires, designed specifically for this purpose.

The questionnaire consisted of 25 questions and is based on questions made by the European HBSC standardized program in order to be comparable to studies of this nature, made in different European countries.

The questionnaire included several sections related to:

- Dangerous behaviors,
- smoking,
- Alcohol,
- The way of feeding,
- Physical activity,
- Sedentary life,
- Individual hygiene.

Three samples were selected for sample selection. The sample was representative and randomized, so a simple random sample method was used. The data obtained from the questionnaires were analyzed in the SPSS program, which is very useful both for data entry and analysis. The subjects that participated in this study were 100, of which 50% male 50% female 12-14 years of age.

**Altimeter length** (Tanita HR 001) and weighing scales (Tanita H384) were also evaluated for the percentage of fat (five fat masses) according to Jackson & Pollock (Jackson, AS, & Pollock, ML 1978; Jackson, AS, et al., 1980).

The protocols were specially designed for each group. It was determined to follow dietary diet for both groups, while for the experiment group it was determined to have a training program (see appendix 2) where the training frequency was 3 times a week and the duration was 60 minutes. While for the control group there was no intrusive exercise program but subjects were asked to provide information on the type of physical activity they would perform during this period. Morpho-functional parameters were also evaluated by means of respective tests such as strength, balance, flexibility, coordination and VO2 max.

The program proposed by this study consists of the training of the control group and the experimental group where the main focus was on the latter (6 months after the first test).

## **Protocols**

### **Tests:**

- **Dietology by means of questionnaires** (standardized questionnaire by HBSC) with 25 questions.
- **Determination of diet for both groups according to HBSC** (see appendix 1)
- **Physical activity**, exercise program defined for the experiment group (see appendix 2)
- **Length:** Measurements were made with the altimeter (value above and equal to 0.5 will be taken over the measurement value, below 0.5 will be the lowest approximate value in the altimeter) of the type; Tanita HR001, licensed by the Federal Drug Administration.
- **Weight:** with electronic type scales; Tanita H384, licensed by the Federal Drug Administration (FDA).

Body fat assessment: The five-point lipid formula according to Jackson & Pollock (Jackson, A. S., & Pollock, M.L., 1978; Jackson, A.S., et al., 1980).

1. Triceps
2. Shoulder
3. Stomach
4. Suprailiac
5. thigh

Data evaluation is done using the formula Brozek:  $BF = (4.57 / \rho - 4.142) \times 100$  (Brožek, J et al., 1963)

**VO<sub>2</sub>max is measured by the Multi-Stage Fitness Test (MSFT)** method, designed by Leger & Lambert (Leger, L.A & Lambert, J., 1982) to observe the progress of VO<sub>2</sub>max development in those sports subjects.

**Balance:** The measurements were made according to the Flamingo test, part of the Eurofit Testing Battery (ETPF., 1993).

**Basal Metabolic Indicator (BMR):** Calculation of Basal Metabolism (BMR) was done according to Harris & Benedict equation (Harris JA, Benedict FG, 1918).

**Harris Benedict Equations:** BMR Calculation in Men (Metric)

**BMR** =  $66.47 + (13.75 \times \text{weight in kg}) + (5.003 \times \text{length in cm}) - (6.755 \times \text{the age in years})$

**BMR calculation in females (metric)**

**BMR** = 655.1 + (9,563 x weight in kg) + (1,850 x length in cm) - (4,676 x the age in years)

**The Body Mass Indicator (TMT)** was calculated by dividing body weight (PT) in kg with Body Height (LT) in meters raised in the second power.

$$\text{TMT} = \frac{\text{PT kg}}{\text{LT metra}^2}$$

**Interval Heart Rate Measurements were performed.**

Maximum cardiac frequency is derived based on age:

$$\text{f.k.max} = 220 - 16 \text{ years (age)} = 204$$

**A.V.D (Arterial Venous Difference)**

**A.V.D calculates systolic volume and volume per minute.**

**Oxygen Pulse (Oximeter):** Transmission method is used, which is a sensory device which is placed in a thin part of the body, usually in the fingertips or in the ears, when the baby is placed at the feet.

**Statistical analysis and data and results:**

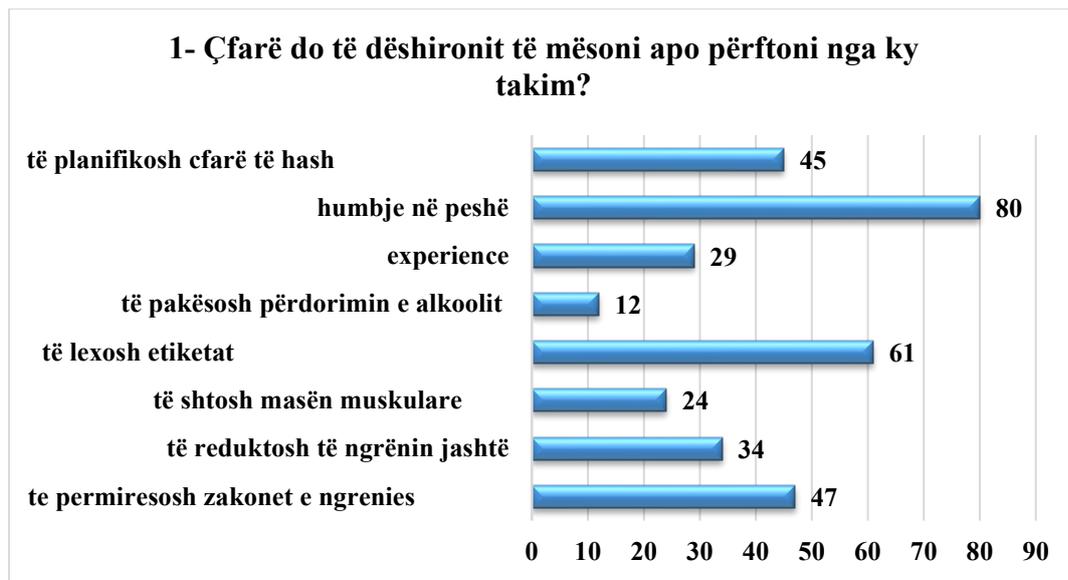
The Statistic Analysis was performed using IBM SPSS Statiscs as a working software environment. The statistical techniques used include: general descriptive analysis, evaluation of data dissemination, and search hypothesis search through differentiation techniques between groups using t- test. T-tests were used to identify the effect of the training plan applied to the experimental group compared to the control group using the comparison technique of the VO2 variables averages between the two groups.

## **Results of the study**

**Questionnaire instantiated by HSBC with 25 questions.**

### **1- What would you like to learn or get from this meeting?**

- a) improve blood glucose 0%
- b) improve eating habits 47%
- c) reduce eating out 34%
- d) increase the muscular mass 24%
- e) lower cholesterol 0%
- f) read labels 61%
- g) reduce the use of alcohol 12%
- h) lowering salt / sodium 0%
- i) keep the carbohydrate account 0%
- j) planning meals 0%
- k) to recognize sugar substitutes 0%
- l) plan how to eat 0%
- m) experience 29%
- n) weight loss 80%
- o) Fibrim 0%
- p) planning what to eat 45%
- q) other 0%



**2. How would you describe your appetite?**

- a) 35% good
- b) 47% right
- c) 18% poor

**3. Do you have any problems in dining such as?**

- a) 7% chewing
- b) 2% diuretics
- c) 38% gas
- d) 12% swallowing
- e) 17% in digestion
- f) 24% coming out

**4. Do you drink alcoholic beverages?**

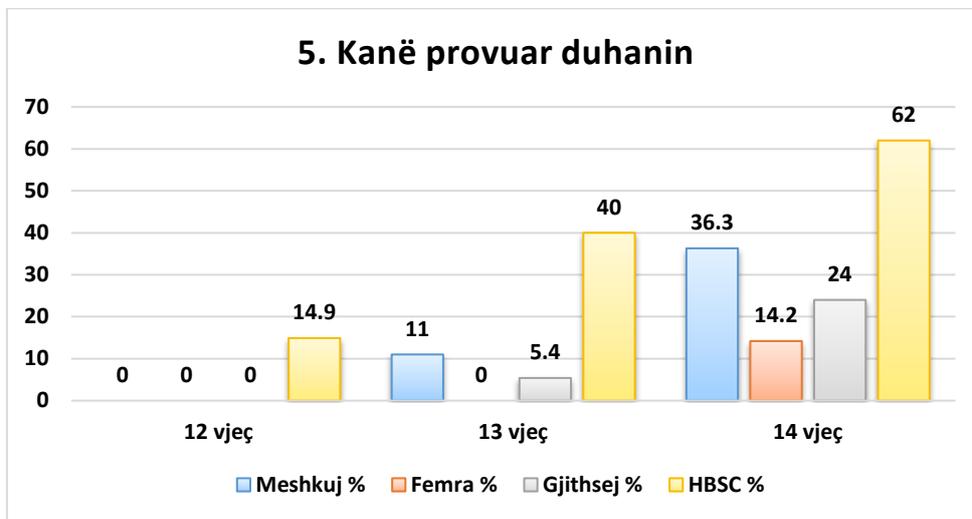
- a) 15% Yes
- b) 75% Yes
- c) 10% No answer

I. Beer 10

II. Wine 1

III. Cognac 4

5. Have tried smoking.



Age	Males %	Females %	Tota %	HBSC %
12 years old	0	0	0	14.9
13 years old	11	0	5.4	40
14 years old	36.3	14.2	24	62

6. Take Vitamins or Narcotic Substances?

a) 14% Yes

b) 86% No

7. Do you use any meals replacement product such as (ensure, boost, gluten)?

a) 7% Yes

b) 93% No

8. Who does the bazaar for food in your home?

a) 22% self

b) 78% others

9. Do weekend meals change?

a) 68% by weight

b) 32% already

**10. How many meals do you eat away from home during the week?**

a) 56% breakfast

b) 32% lunch

c) 12% dinner

**11. Do meals eat away from home on weekends?**

a) 5% breakfast

b) 58% lunch

c) 37% dinner

**12. Have you previously taken dietary advice?**

a) 84% by weight

b) 16%

**13. Do you have a plan for the meals you eat?**

a) 69% Yes

b) 31% No

**14. What planning do you use for food?**

a) 12% calorie count

b) 18% food pyramid

c) 16% list

d) 0% carbohydrate count

e) 54% none

**15. How much of the time do you follow food planning?**

a) 30% - (0% - 25%)

b) 48% - (25% - 50%)

c) 15% - (50% - 75%)

d) 7% - (75% - 100%)

**16 Have you previously instructed to follow any other diet?**

a) 28% Yes

b) 72% No

**17 If yes / what?**

Of the total 28%

a) Low calories 4%

b) a little cholesterol 6%

c) without fats 9%

d) a little salt / soda 6%

e) without protein 0%

f) Many fibers 0%

g) other 3%

**18. How has your weight changed over the years?**

a) At all 32%

b) 52% added

c) 16% lost

**19. How much would you want to weigh?**

a) 56% less

b) 44% more

**20. Do you train now?**

a) 27% Yes

b) 73% No

**21. If so, what kind of exercise do you do? Of the total 27%**

a) 8% basketball

b) 19% football

**22. How often / and how long? Of the total 27%**

a) 21% every day

b) 6% 3-4 times a week

**23. If not / what would you like to do? From 73% in total**

a) 28% football

b) 12% fitness

c) 14% volleyball

d) 19% basketball

**24. Are there any reasons why you do not want to train?**

a) 28% Yes

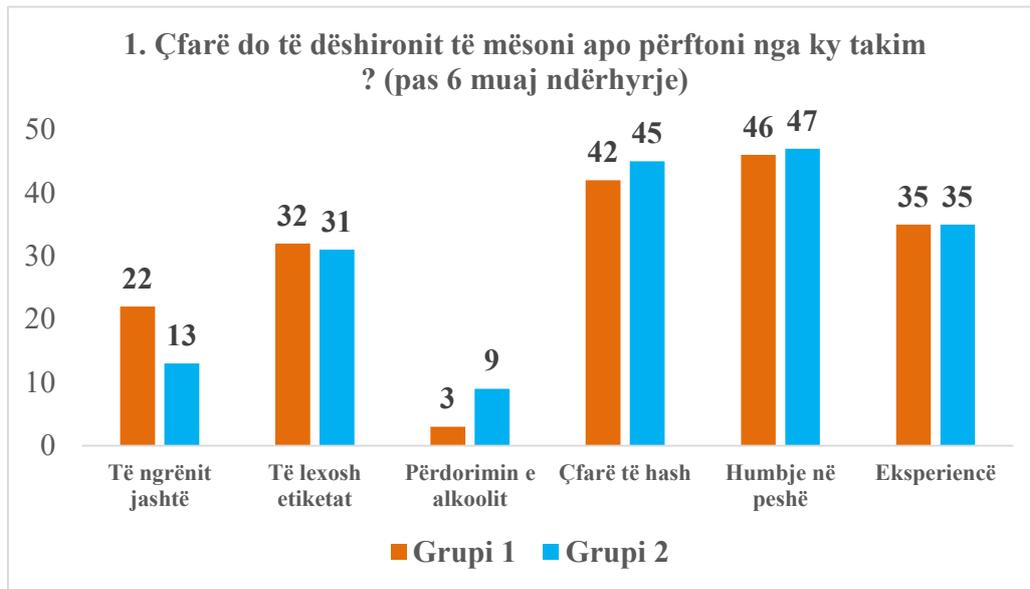
b) 72% No

**25. If we were to recommend you, would you have difficulty changing the eating habits?**

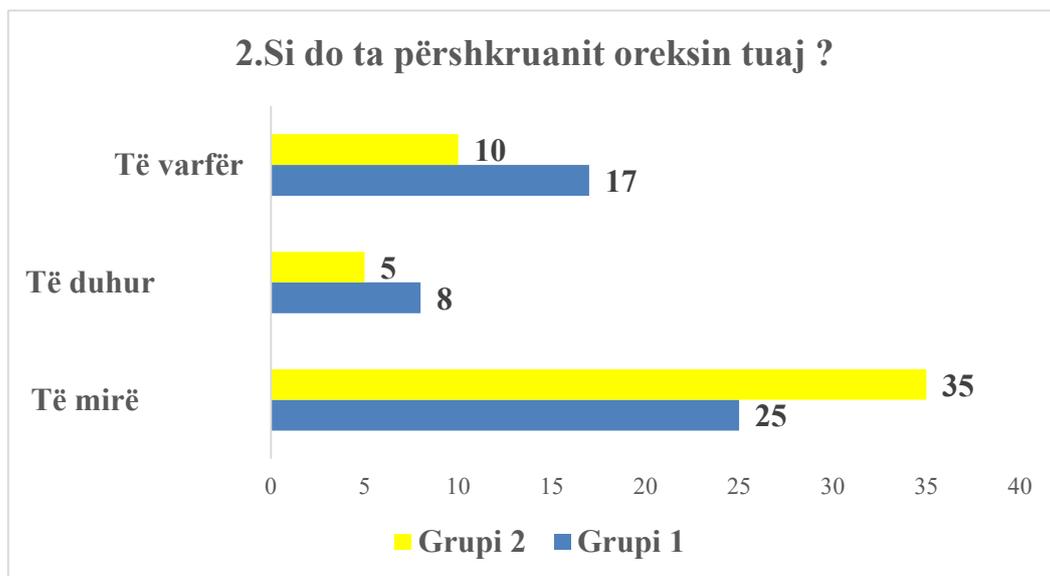
a) 70% Yes

b) 30% No

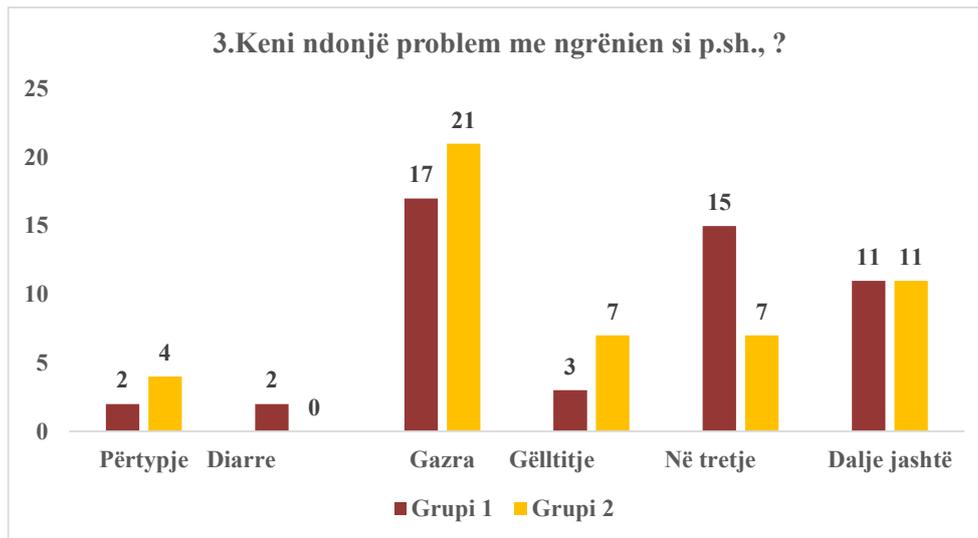
**Questionnaire after 6 months (4 subjects from G2 and 3 from G1 stopped the test)**



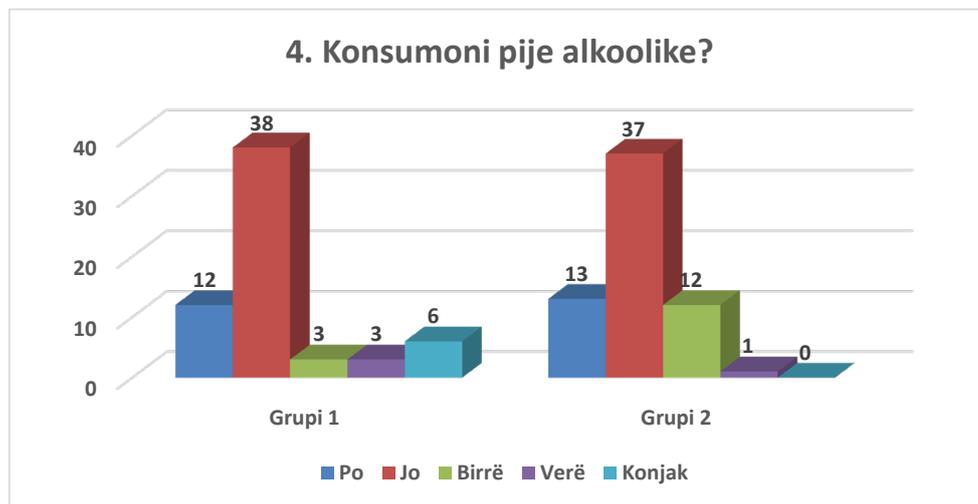
**Graph 1.** Question 1. What would you like to learn or get from this meeting (in%)? (after 6 months of interference)



**Graph 2.** Question 2. How would you describe your appetite?



Graph 3. Question 3. Do you have any problems with eating like?

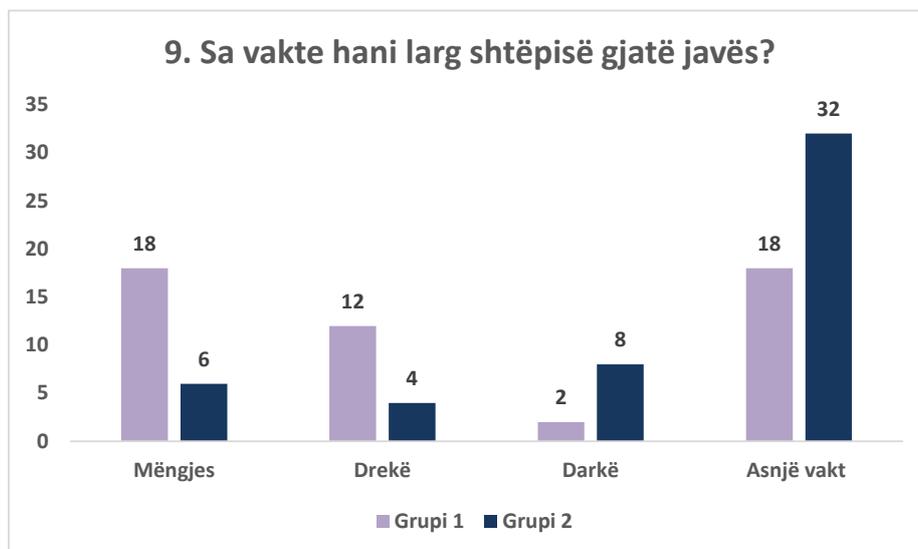


Graph 4. Question 4. Do you drink alcoholic beverages?

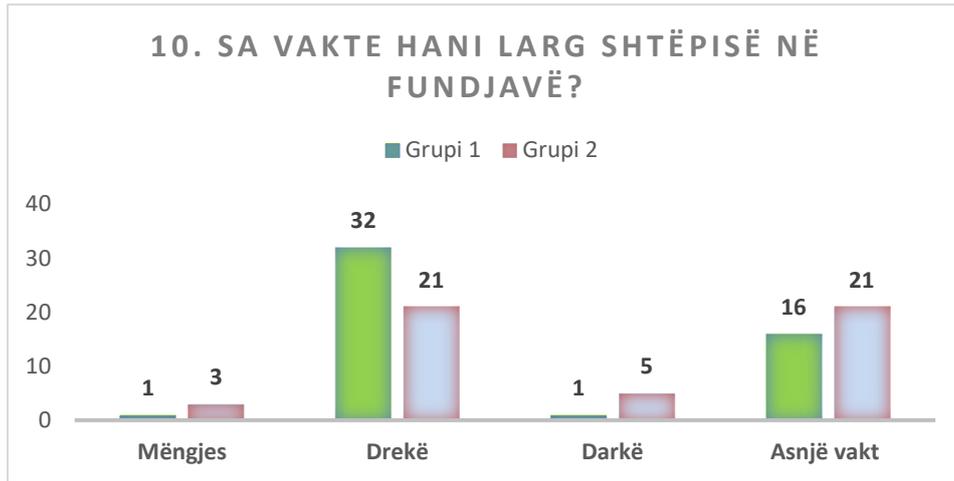
5. Do you take Vitamins or Narcotic Substances?		
	Group 1	Group 2
Yes	6%	8%
No	44%	42%

<b>6. Do you use any additional supplements replacement product?</b>			
	<b>Group 1</b>	<b>Group 2</b>	
<b>Yes</b>	1%	6%	
<b>No</b>	49%	44%	
<b>7. Who is doing the shopping for food in your house?</b>			
	<b>Group 1</b>	<b>Group 2</b>	
<b>Myself</b>	18%	12%	
<b>Others</b>	32%	38%	

<b>8. Do the meals schedule change during weekend?</b>			
	<b>Group 1</b>	<b>Group 2</b>	
<b>Yes</b>	11%	25%	
<b>No</b>	39%	25%	



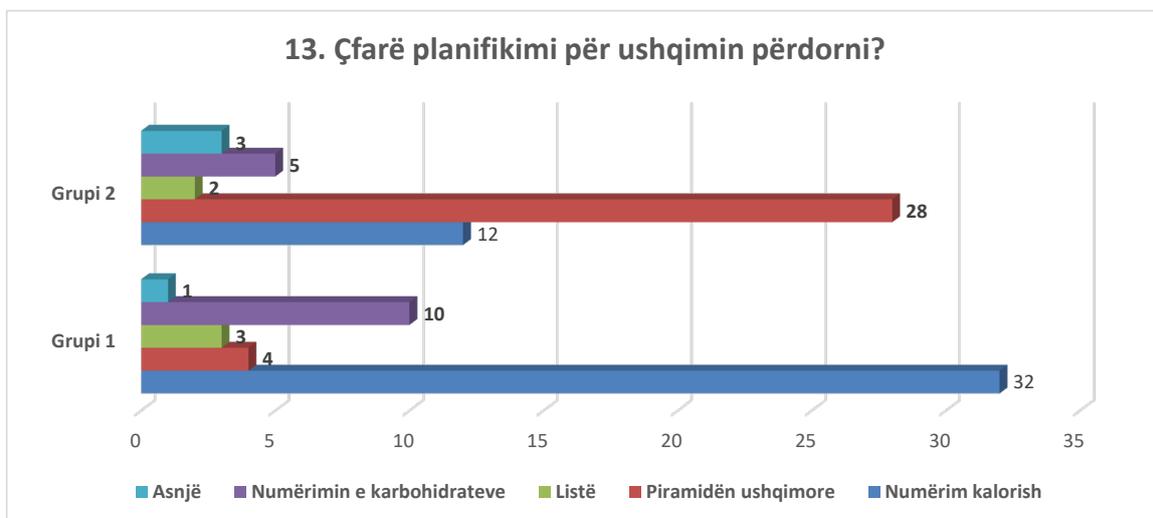
**Graph. Question 9.** How many meals do you eat out during the week?



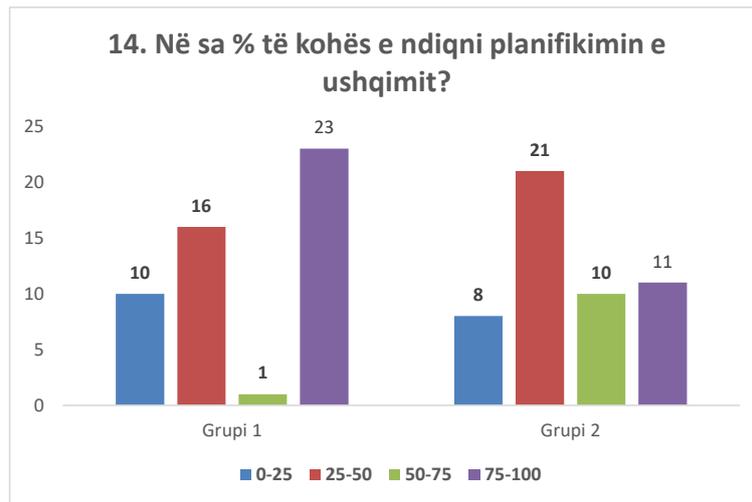
Graph 6. Question 10. How many meals do you eat out during the weekend?

11. Did you ever get nutrition advices before?			
	Group 1	Group 2	
Yes	48%	46%	
No	2%	4%	

12. Do you have any schedule for your meals?			
	Group 1	Group 2	
Yes	48%	46%	
No	2	4	



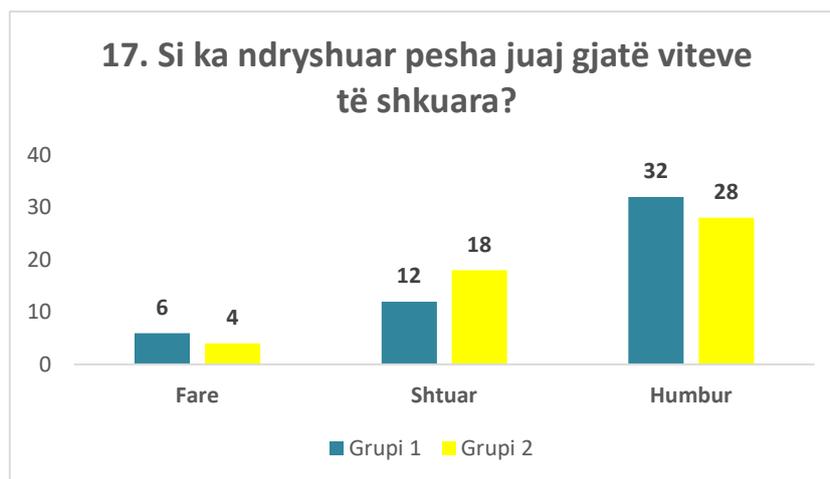
Graph 7. Question 13. What type of plan you use for the food?



**Graph 8. Question 14.** How % of your time you follow your food plan?

15. Did you get instructed before how to follow a diet?			
	Group 1	Group 2	
Yes	4%	2%	
No	46%	48%	

16. If yes, what?			
	Group 1	Group 2	
No calories	2%	1%	
No fat	1%	0%	
No proteins	0%	0%	
Low cholesterol	1%	0%	
No soult, sodium	0%	0%	
Other	0%	1%	



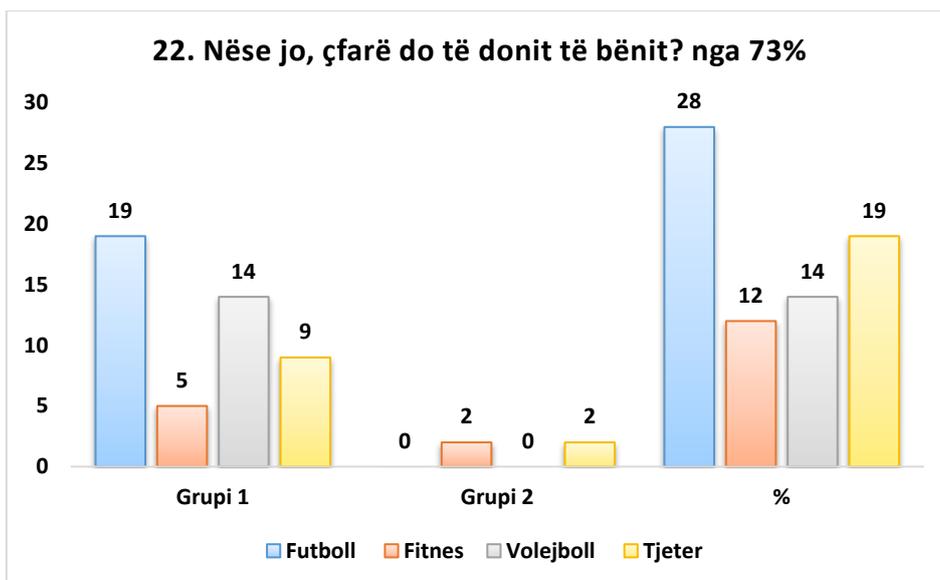
Graph 9. Question 17. How did your weight changed during last few years?

18. How much do you wanted to weight?	Group 1	Group 2	
Lees	32%	34%	
More	18%	16%	

19. Are you training now?	Group 1	Group 2	
Yes	3%	46%	
No	47%	4%	

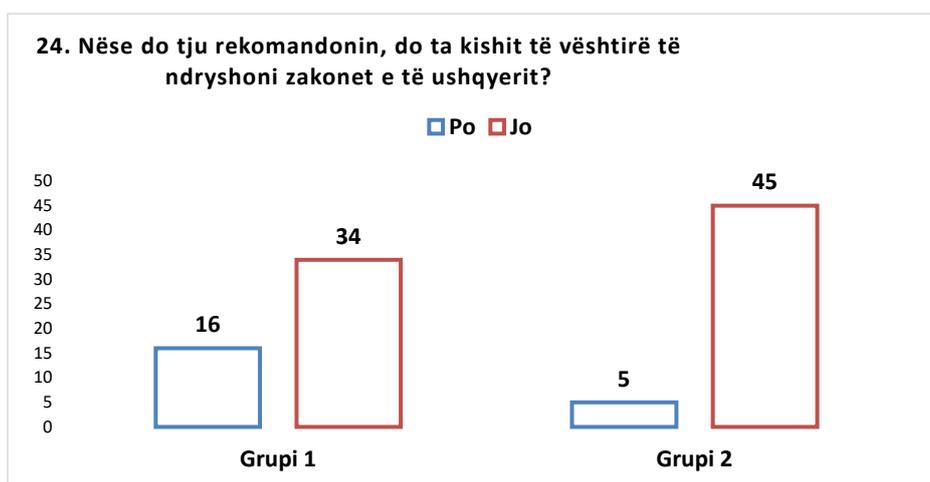
20. If yes, what type of training?, From 49%	Group 1	Group 2	
Basketball	2%	7%	
Football	1%	39%	

21. How often and for how long?, from 49%	Group 1	Group 2	
Everyday	1%	25%	
3-4 times per week	2%	21%	



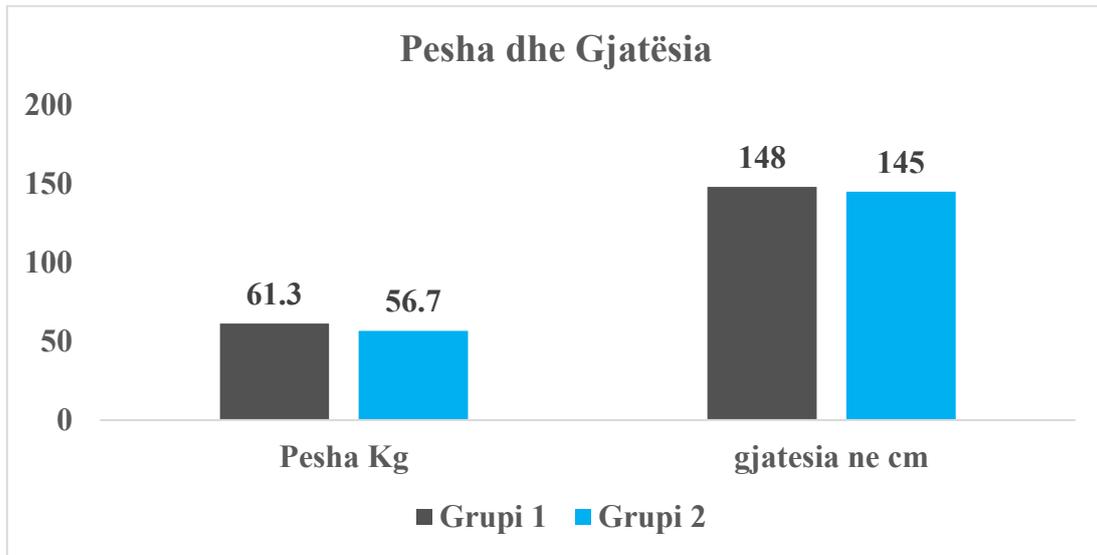
Grafiku 10. Pyetja 22. Nëse jo, çfarë do të donit të bënit? nga 51%

23. Is there any reason why you should not train?			
	Group 1	Group 2	
Yes	47%	4%	
No	3%	46%	

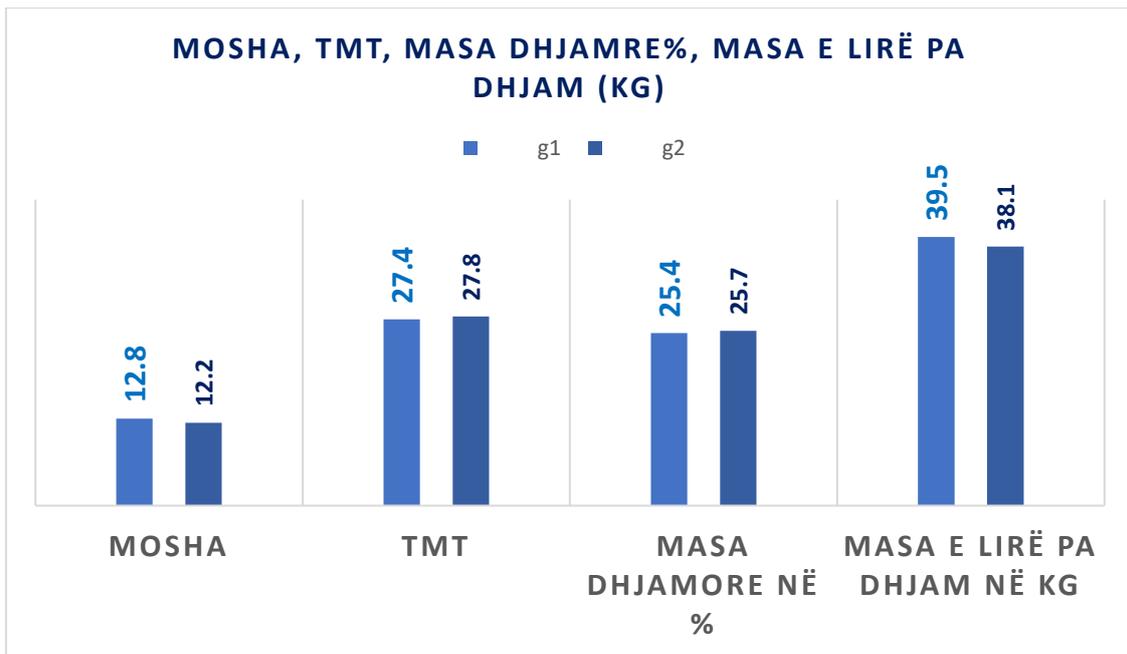


Graph 11. Question 24. If you will be recommended, will it be difficult for you to change your eating habits

**Antropometric measurements**

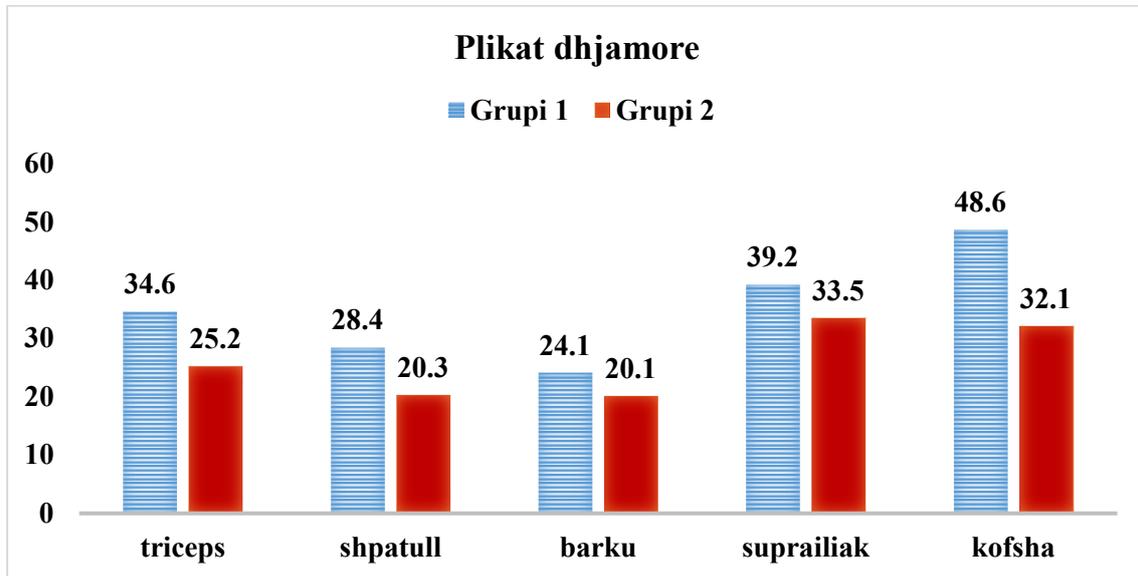


**Graph 12.** Subjects antropometric measurements, weight (kg) and height (cm)

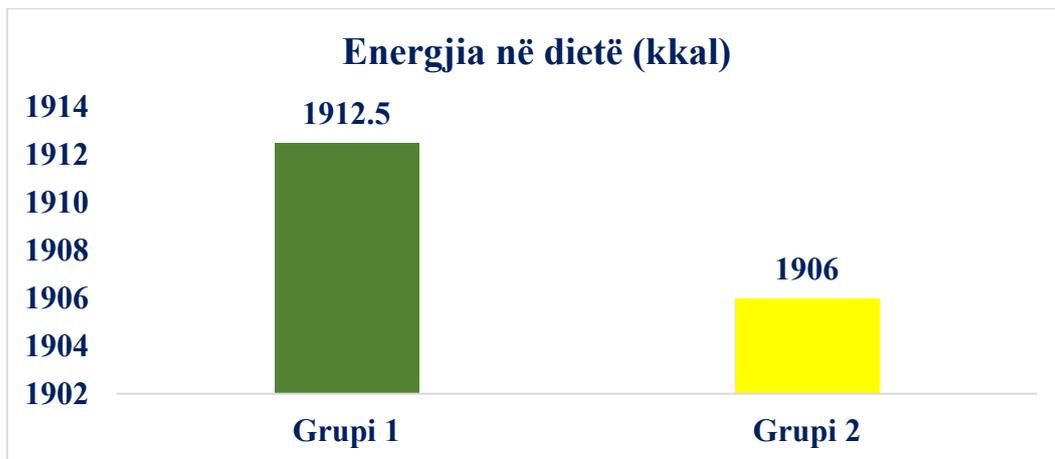


**Graph 13.** Group 1 & 2. Age, BMI, Fa mass%, Fat free mass (kg)

Results of descriptive analysis for variables “Fat percentage” grouped according to type of group (Control-Experimental) are showed in the table below



**Graph 14.** Subcutaneous fat (mm), triceps, shoulder, abdominal, suprailiac, quadriceps

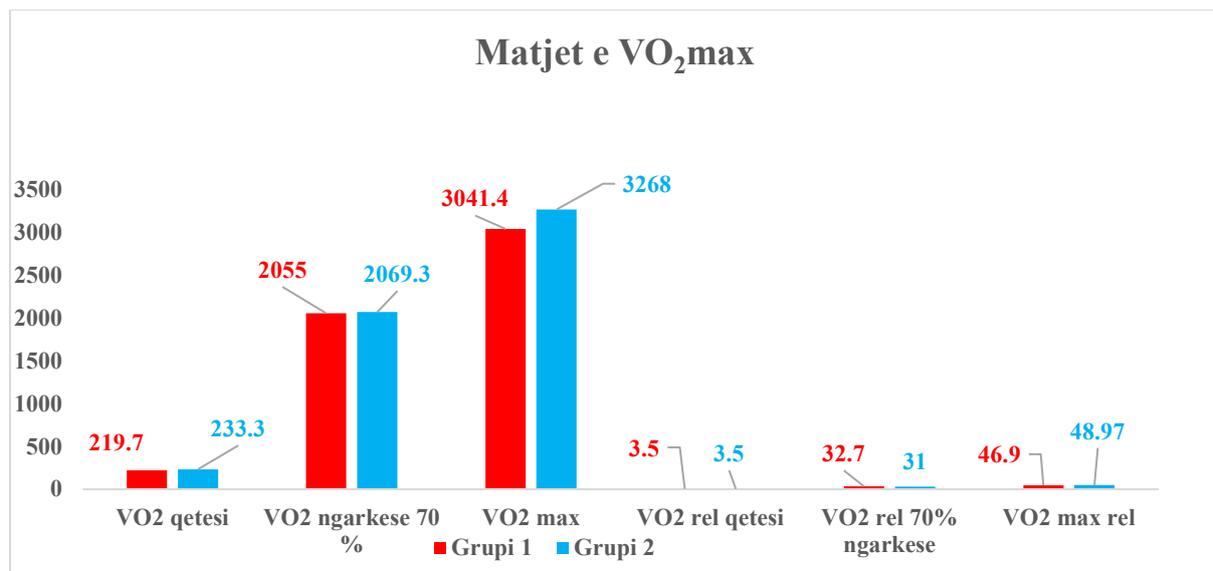


**Graph 15.** Energy on diet (Ccal)

Statistical analysis results

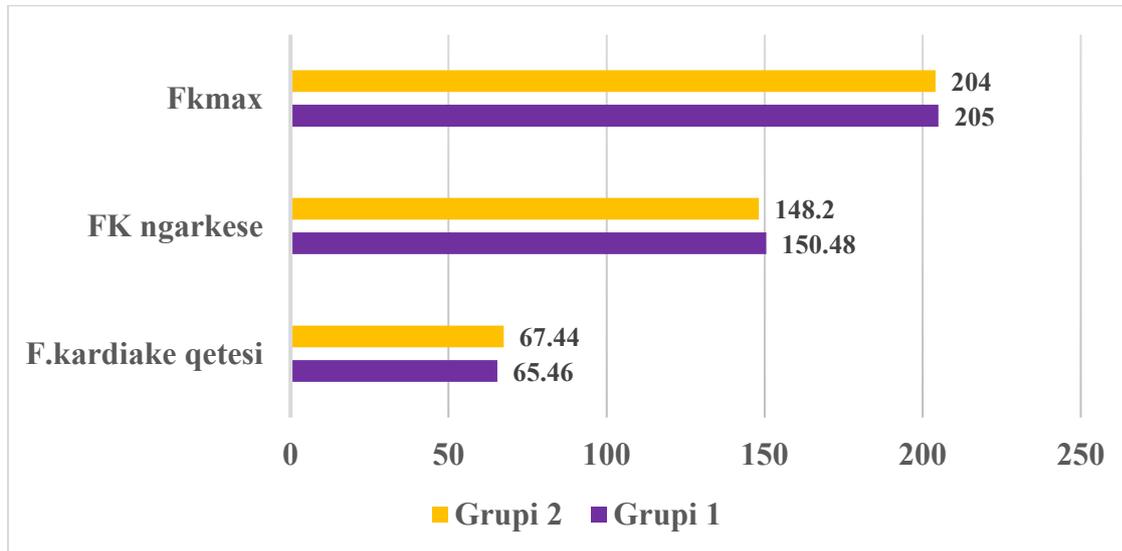
**Table 1.** Results of descriptive analysis for “VO<sub>2</sub>” variables grouped according to group type (Control-Experimental)

Group Statistics					
	Grupi	N	Mean	Std. Deviation	Std. Error Mean
VO <sub>2</sub> _Qetësi	Dietë	50.00	221.44	83.01	11.74
	Dietë & Ushtrime – Eksperimental	50.00	247.69	79.06	11.18
VO <sub>2</sub> ngarkesë 70 %	Dietë	50.00	2061.43	380.49	53.81
	Dietë & Ushtrime – Eksperimental	50.00	2105.30	373.28	52.79
VO <sub>2</sub> Max	Dietë	50.00	3017.99	267.84	37.88
	Dietë & Ushtrime – Eksperimental	50.00	3288.24	226.60	32.05
VO <sub>2</sub> rel ngarkesë 70 %	Dietë	50.00	30.21	4.48	.63
	Dietë & Ushtrime – Eksperimental	50.00	33.58	5.72	.81
VO <sub>2</sub> Max_Relativ	Dietë	50.00	47.86	9.38	1.33
	Dietë & Ushtrime – Eksperimental	50.00	49.58	9.27	1.31
VO <sub>2</sub> rel qetësi	Dietë	50.00	3.50	0.5	0.12
	Dietë & Ushtrime – Eksperimental	50.00	3.50	1.1	0.11

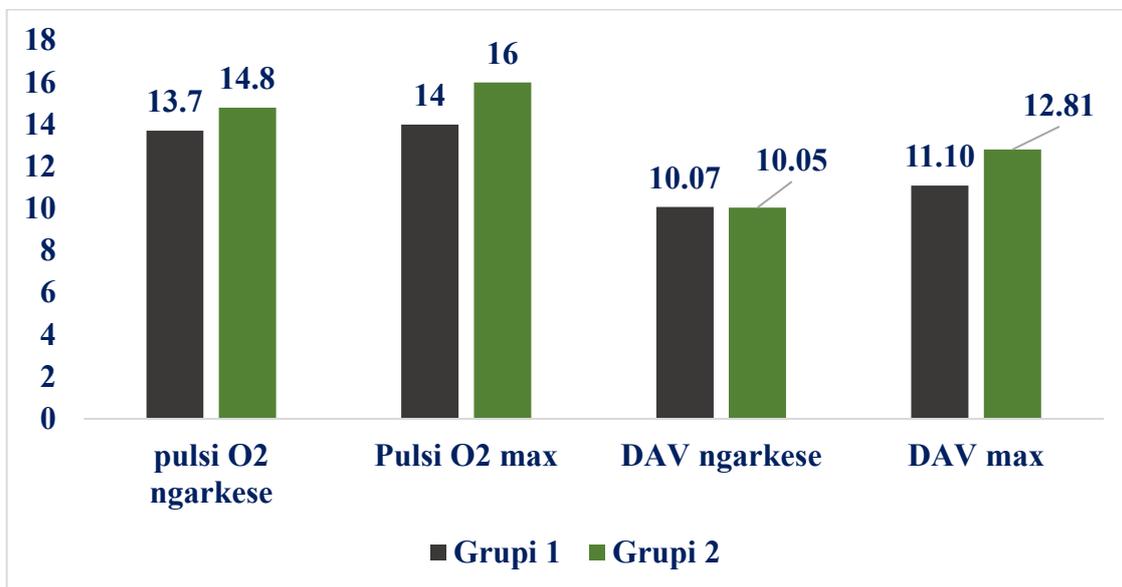


**Graph 16.** Comparison of average result datas of VO<sub>2</sub> max according to group

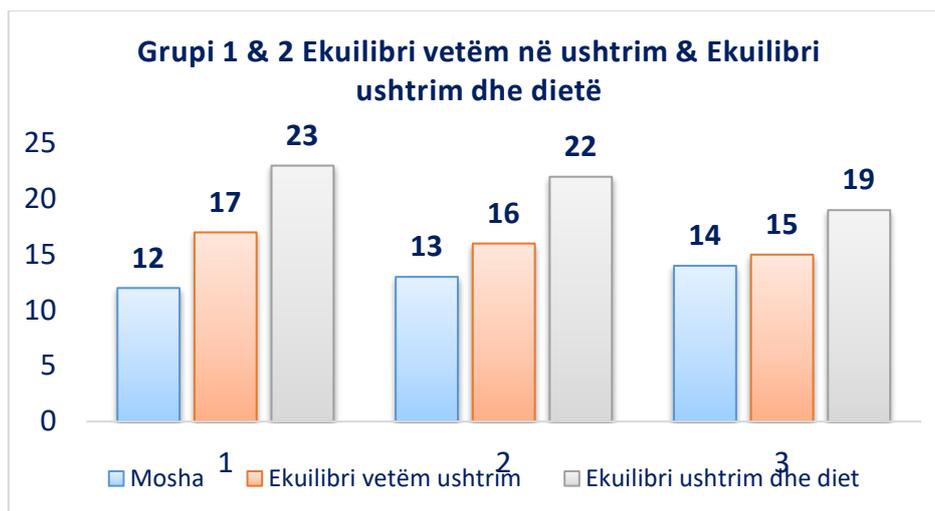
Based on the comparison of average results it is concluded a higher average in the experimental group compared with control group for:



**Graph 31.** Group 1 & 2. CF max, CF i load, CF with no load (quiet) (Beats/min)



**Graph 32.** Group 1 & 2. Pulse O<sub>2</sub> in load (SpO<sub>2</sub>). Pulse O<sub>2</sub> max, DAV in load, DAV max



**Grarf 33.** Group 1 & 2. Age, Equilibrium only during exercise, Equilibrium durin exercise and diet

## Discussion

Adapting to diets and physical exercise are two essential things to maintain body weight. Moreover, the amount and variety of foods present in a diet should be further adapted to the type of training pursued by an individual. Subjective changes The HBSC shows that in Europe the smoking phenomenon comes as a result of the curiosity to prove it, which in our youth is realized at the age of 13 for males and 14 for women. But as far as we can see from our data, this phenomenon is smaller than the European average at all ages, even less than in all countries included in the European study. This seems to us to be related to the impact and relationship with the family of these ages and the small geographical area of the area. They fear being quickly discovered by acquaintances or relatives and may have problems in the family. From the questionnaire study we found that we have a high level of coexistence and interaction of dangerous behaviors among young people. The study shows a dominance of subjects from urban areas and a light domination of girls. They prevail in urban areas in the age groups of 12 and 13 years old, while in rural areas only at that age 12. Another thing to notice is eating out. A very high percentage of children ate outside the home, meaning they did not have control over the food they consume, especially when they are over the age of 13. Also from studies conducted in other countries, eating disorders have been seen as a very important problem that affects overweight. While tested for the first time, nearly 70% of them had changes in meal times. At the same time, from the initial test, more than half of them had weight gain, while only one in three did exercise in any form, while the rest were inactive. What was observed after 6 months was a change in the ratio of those who ate out with those who ate at home, out

of 78% of those who ate at least two to three meals after 6 months went down to 30%. The use of alcohol as a risk behavior dropped from 12% to 3%, and nearly 87% of individuals began looking for quality food. Also, it is noticed that most children eat dinner each day with their parents, even though the report decreases with age. The breakfast meals are of particular importance to the health of the child and only at the age of 12 we look at both male and female careers as much as Europeans. At the age of 13 and 14 years this figure falls. This is explained by the fact that by the age of 12 they have greater dependence on the family. We note that the issue of keeping diet, coupled with what we said earlier, is expressed in women and especially after the age of 13, they tend to maintain diet and the figures are higher than HBSC. The law of eating breakfast at home every day or 5-6 days a week was observed in less than half of the study subjects and the percentage decreased with the age increase from 46.3% to 12 year olds at 7.8% to 15 year olds.

While 14.6% and 25.5% of children ages 12 and 14 respectively, never eat breakfast at home. By contrast, the situation is much better in relation to the dinner meal. Most children eat dinner each day with their parents even though the percentage is decreasing with age increases. Only a very small percentage of students do not eat between meals, time they use watching TV or playing computer. We had an increase in the number of nearly 68% of those who made the bazaar itself compared to the previous one. Today, the number of those who trained regularly increased by almost 25%. Diet problems were improved especially in the group that did physical activity, here there was a significant significant decrease especially in the swallowing gland chewing disorders and the number of meal meals (eat larger number of meals). At the same time, the training group has generally become weaker and we note that this group has the inherent risk of less dangerous health behavior. Weight estimation by the children themselves gives satisfactory figures as compared to HBSC, however this is more apparent in males. Women seem to be more cautious and react to weight as early as 13 years of age. They seek to control their weight. Referring to the data on physical activity, from the students' assertions, we note that they feel active just as much as Europeans, but women are less active than men, which is related to the domestic habits where women are staying time close to the family. We notice that 70% would have difficulty changing their eating habits if they would recommend it, compared to 30% who would not have difficulty changing their eating habits if they would recommend it. Also in relation to physical activity we notice that 28% of subjects have reasons why they should not be trained, such as lack of time or family problems, and 72% who have no reason why they should not be trained simply need one impetus to do so. The objective

differences we got in physical testing between the two groups. We notice that the first group has a body weight approximating the second group and has a length greater than the second group, and when looking at the parameters of the body mass index it seems that the first group is better than the second group by the but when we observe inwardly the greasy plaque, we see that in all fat plaques the middle of the second group is lower than the first group masseur, regardless of the point where the fat content is measured. Which means that although apparently the body weight is rough the muscle mass is predominant in the second group compared to the first group. The second group receives a diet that is lower in total energy compared to the first group, which, together with physical exercise, causes the group to predispose to weight over time, but the time of the study it was too short to get a strong change in body weight.

Regarding Cardiac Frequency (FK) on the load, it is approximate between the two groups, but the intervention group is slightly lower than the control group. The normal heart rate at break has a wide range. In unskilled people it ranges from 60 to 100 beats per minute, while in trained people 36 to 65 beats per minute. Significance is the exact determination of cardiac frequency at rest in experiments and in tests involving changes in heart rate during exercise. Heart rate changes, in most cases, are associated with human activities. The average cardiac frequency at breaks is about 78 beats per minute in men, and 84 beats per minute in females. Cardiac frequency progressively decreases since the birth of a human being (when it is about 130 beats per minute) to adolescence. The fact that heart rate increases during sports training is a widely observed data. The ease of measuring pulse frequency has been the cause of a large number of studies of heart rate changes during different types of exercise with different intensity and duration. With cardio frequency, it has been possible to record heart rate continuously, both during exercise and during the period following it. Average heart rate during exercise maximally highest at age 10, 220 rr / min,. As the age increases, the maximum heart rate drops around a beating per minute each year. This reduction is the same for males and females. Increased heart rate starts immediately after starting the exercise. It can actually start before the exercise starts to fit muscle strain, such as "taking a stand" to make a sprint. It is believed that this pre-increase in cardiac frequency is caused by the effect that the cerebral cortex over cardiac bulbar centers. This growth usually tends to stabilize after a few seconds and continues to grow to the maximum maximum level that can only be achieved after a few minutes. This time interval may result in changes can be reached within less than a minute. With other people, the frequency may continue to grow slowly for more than an hour. It

depends on the intensity of the exercise when the pulse can go up to 200 beats per minute. While the Arterial Venous Difference (D.A.V) and the Maximum Oxygen Pulse (O<sub>2</sub> max) are in favor of the training load group. Another changed index that is directly linked to the Central Nervous System (SNQ) and the reverse of the overweight is the equilibrium which is obviously in favor of the training load group. The Arterium-Venous Difference calculates the systolic volume and volume per minute. This method evaluates the arteriovenous difference (DAV), ie if the oxygen content in the venous blood that goes into the lungs is 15 volumes, the oxygen content of the arterial blood is 20 volumes and the oxygen consumption of the organism is 250 ml / min, then the amount of oxygen consumed per minute responds to the amount of oxygen captured by the lungs per minute.

## **Conclusions and recommendations**

Our "prophecy" on both hypotheses of the study was verified by naturally coming down to the following conclusions:

- We are dealing with a multi-factorial study that combines with a cross-sectional study and a longitudinal study.
- After 6 months there was a difference in the ratio of those who ate out with those who ate at home, out of 78% of those who ate at least two to three meals after 6 months went down to 30%.
- Women and males at all ages respond with NO using strong alcoholic beverages like brandy, brandy and brandy. This proves the fact that they drink occasionally from wine or parents' beer in their home.
- The HBSC shows that in Europe this phenomenon comes as a result of the curiosity to test the tobacco that our teenagers realize at the age of 13 for men and 14 for women. But as far as we can see from our data this phenomenon is smaller than the European average.
- The use of alcohol as a dangerous behavior dropped from 12% to 3%, almost 87% of individuals began to look for quality food. Most children ate dinner each day with their parents even though the report declined as the age grew.
- We note that those who use alcohol more are boys at all ages, compared to women.

- 70% of respondents would have difficulty changing their eating habits if they would recommend it to 30% who would not have difficulty changing their eating habits if they would recommend it.
- Meanwhile, it is noticed that the first tested groups had nearly 70% of their meal meals.
- Breakfast meals are of particular importance to the health of the child, and we are looking at both men and women only at the age of 12, looking just like the Europeans. At the age of 13 and 14 years this figure falls. This is explained by the fact that up to 12 years of age have greater dependence on the family.
- The issue of keeping the diet connected with this is what we said earlier is expressed in women and especially after the age of 13 they tend to maintain diet and the figures are higher than HBSC.
- The law of eating breakfast at home every day or 5-6 days a week was observed in less than half of the study subjects, and the percentage decreased with increasing age from 46.3% to 12 year olds at 7.8% to 14 year olds. While 14.6% and 25.5% of children aged 12 and 14 respectively never had breakfast at home. By contrast, the situation is much better in relation to the dinner meal.
- It is noticed that the training group has generally fallen in weight, and that this group has the inherent risk of having less dangerous health behaviors.
- The second group receives a diet that is lower in total energy compared to the first group which, together with physical exercise, causes the group to predispose to weight over time, but the time of the study it was too short to get a strong change in body weight.
- Referring to physical activity data from student testimonies, we note that they feel active as much as Europeans, but women are less active than men, associated with family habits where women stay longer near the family.
- 28% have reasons why they should not be trained such as lack of time or family problems. 72% have no reason why they should not be trained simply need an incentive to do so.
- The questionnaire study showed that we have a high level of association and interaction of dangerous behaviors among young people.
- We see that in all fatty plaques the mean of the second group is lower than the first group masseur regardless of the point where the fat is measured, which means that although apparently the body weight is rough, the muscular mass is the predominant in the second group compared to the first group.

- It is also noted that the percentage of lesions is different between the two groups in favor of the experiment group. This group has a total decrease in percentage of fat compared to the other group, corresponding to the changes even in VO<sub>2</sub> max 70%. If in other areas we have a decrease of 10-12%, we have a decrease of 25% in the thickness of the thigh. Regarding the cardiac frequency at workload, it is approximate between the two groups, but the intervention group is slightly lower than the control group.
- While venous artery and pulse of O<sub>2</sub> max are in favor of the training load group.
- Another changed index that is directly linked to the central and backward nervous system with an obese is the equilibrium which is obviously in favor of the training load group.
- Independent t-test results for the variable "VO<sub>2</sub> max serenity" ( $t(98) = -1.619$ ,  $P = 0.109$ ) showed a statistically not significant difference between the experimental and control group.
- Independent t-test results for the dependent variables "VO<sub>2</sub> max load 70%" ( $t(98) = -0.58$ ,  $P = 0.562$ ) showed a statistically not significant difference between the experimental and control groups. Consequently, it can not be proved that in the experimental group the applied training plans have had an impact or were more efficient in improving the "VO<sub>2</sub> max load 70%".
- Independent t-test results for the dependent variables "VO<sub>2</sub> max" ( $t(98) = -5.45$ ,  $P < 0.0005$ ) showed a statistically significant difference between the experimental and control groups. Consequently we conclude that in the experimental group the applied training plans have had an effect on improving the "VO<sub>2</sub> max".
- Independent t-test results for the dependent variables "VO<sub>2</sub> max rel. Load 70%" ( $t(98) = -3.28$ ,  $P = 0.001$ ) showed a statistically significant difference between the experimental and control groups. Consequently we conclude that in the experimental group, the applied training plans have had an effect on improving the "relative load VO<sub>2</sub> max 70%".
- Independent t-test results for the dependent variable "VO<sub>2</sub> max Relative" ( $t(98) = -0.92$ ,  $P = 0.357$ ) showed a statistically not significant difference between the experimental and control groups. Consequently, it can not be proved that in the experimental group the applied training plans have had an impact or were more efficient in improving the "VO<sub>2</sub> max Relative

- Further studies are needed to validate the countrywide situation and to understand its causes because in this study the duration of testing was only 6 months and often changes in individuals require a longer time to fully evaluate.
- These should be followed by specific interventions with a view to raising the level of parents' awareness of their major role in their impact on children and laying the groundwork for a healthy lifestyle.

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