Abstract
Diabetes is a disease that affects the metabolism, producing distress in processes by which our body takes over the digested food and turns it into glucose by decomposition. Regular physical exercise represents an essential pillar in the treatment of diabetes and counteracts many of the detrimental effects of insulin resistance. They improve glucose control and blood lipid levels, they increase blood flow and vascular function, they improve fitness, reduce the risk of heart disease and may ease weight loss. Thus, physical exercise can be considered a natural, affordable and enjoyable “medicine”, which is within the reach of anyone who wishes and intends to use it as (when, where, how) required. The positive effect of movement on health is reflected by the improvement of functions of all organs and systems, respectively, in our case, carbohydrate metabolism is improved by increasing muscle capacity to extract (retrieve) glucose and fat from blood, using it to obtain energy.

Keywords: diabetes, insulin, physical exercise, obesity, stress.

JEL classification: I1, I19

Introduction

As physical education teachers at the Academy of Economic Studies, we found over time that many students are diagnosed with type II diabetes and they are advised to get medical exemption from physical education, instead of participating with greater determination and will in classes, being, thus, guided towards a balanced and beneficial program for their health.

Diabetes is a disease that affects the metabolism, producing distress in processes by which our body takes over the digested food and turns it into glucose by decomposition. Glucose, the form in which sugar is found in our body, is the main source of energy for the body. Glucose needs an optimal amount of insulin, hormone released by the pancreas, so it can be absorbed by blood cells. In the case of persons suffering from diabetes, the pancreas produces too little insulin, sometimes not at all, or the cells do not respond properly to the secreted insulin. Thus, the body loses its main source of energy, even though there is sufficient glucose in the blood.

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Thus, we understand how important are the links between the various organs, and why it is vital to be concerned of their proper functioning choosing a balanced lifestyle that can keep us away from chronic diseases, such as diabetes.

The goal is to keep the disease under control as it is among the incurable diseases. We can instead treat it, i.e. to control the symptoms, to stop its manifestation and to enjoy the normal course of life.

And if diabetes is a condition you were born with, then adopting a healthy lifestyle and diet is particularly important to combat its emergence and disastrous effects on the body.

Type II diabetes mellitus, formerly known as non-insulin-dependent diabetes mellitus (NIDDM) is a metabolic disorder characterized by a high blood glucose level in the context of insulin resistance and a relative deficiency of insulin.

Causes, According to studies, more and more adults and children develop type 2 diabetes, the main cause being the increasingly unhealthy lifestyle accepted throughout society. Other causes that can be listed are overweight, lack of physical exercise, sedentary lifestyle and genetic inheritance.

Statistics say that more than one third of patients with diabetes do not know they have this disease most likely because it is incipient. When it starts to manifest, type II diabetes produces the following symptoms:

- excessive thirst; frequent urination and in larger quantities; and increased and paradoxical appetite, weight loss; fatigue.

Rarely are other signs occur, such as:

- the presence of numerous infections or slow wound healing; hazy eyesight; tingling or numbness in the limbs; numerous skin infections or urinary tract infections, vaginitis.

In the absence of specialized treatment, the symptoms listed above may cause serious complications: kidney, eye, cardiovascular and nervous.

Once the condition is installed, it cannot be cured, but its evolution can be stopped.

According to statistics released by the Ministry of Health in Romania, in 2011, our country recorded a rate of about 5% of people with diabetes mellitus, around 900,000 in numbers, approximately 14.5% of them being insulin-dependent. Currently, these figures are almost double.

In 2010, global estimates showed that there are 285 million people suffering from type 2 diabetes, i.e. 90% of cases of diabetes. This means about 6% of world’s adult population. Diabetes is common both in developed and in developing countries. However, the incidence of the disease remains low in developing countries.
There are a number of factors related to lifestyle that are important in the development of type 2 diabetes, including: obesity (defined by a body mass index greater than thirty), physical inactivity, inadequate diet, stress and urbanization. Excess fat is associated with 30% of cases of people from China and Japan, 60-80% of cases of persons from Europe and Africa and 100% of Pima Indians and natives in the Pacific Islands.

Factors related to diet also influence the emergence of type 2 diabetes. Excessive consumption of sugar-sweetened beverages is associated with a high risk. The types of dietary fats, saturated fats and fatty acids are also important as they increase the risk. It seems that the high consumption of white rice plays a role in increasing the risk. Lack of physical exercise is believed to generate 7% of cases.

Regular physical exercise represents an essential pillar in the treatment of diabetes and counteracts many of the detrimental effects of insulin resistance. They improve glucose control and blood lipid levels, they increase blood flow and vascular function, they improve fitness, reduce the risk of heart disease and may ease weight loss.

The training starts from the level of the subject and it is gradually increased to achieve a minimum 5 sessions / week. The meeting will begin with a warm up (10 minutes), followed by stretching (stretching, 10 minutes). Then follows the actual content, which may be brisk walking, running, cycling, swimming, aerobics, fitness, etc., which lasts about 30 minutes. It always ends with a short body recovery after exercise (about 10 minutes, which will consist of stretching and relaxation exercises, breathing exercises). During the training session, large amounts of water will be consumed to compensate for losses through perspiration.

Hence, a balanced healthy diet should be added to physical activity, not necessarily intense. A better control of blood glucose will be achieved by blood oxygenation. As side benefits, stress will be eliminated which will contribute to wellbeing, relaxation, optimism and a greater power of recovery.

Proper nutrition and physical exercise are the basis of treatment in diabetes, the more sustained physical exercise, and the better results.

Aerobics and Fitness are both means of physical education and education for a healthy lifestyle.

Aerobics and Fitness are forms of social and professional integration of young people through their formative function of perception and motor skill intellectualization; we can highlight the importance of self-regulation of motor behavior, not only in class, but also beyond it, in life, in view of maintaining health and ensuring the work capacity, a high quality of life.
The personality of the students must be revealed and promoted, disclosing the motor skills which make the difference between the students. Aerobic gymnastics and fitness in general aimed predominantly “biological machine”, paves the different dimensions of personality development issue, modeling alongside aesthetics (Ciomag, V, 2014).

The issue of aerobic activities is an important theme, embodied in basic research, especially in clinical studies, whose results are widely recognized. We note in this regard the works developed at the Institute founded by dr. Kenneth Cooper in 1970, addressing issues concerning the physiology of physical exercise, causes of obesity, hypertension, epidemiology, behavioral changes, child health, nutrition and aging effects etc.

Aerobic exercise is a way of maintaining and strengthening the physical and mental health. It could be considered a natural medicine, which applies to all forms of movement, to physical exercise, in general.

Body resistance plays a crucial role in obtaining an optimal level of fitness. “The human body can store the necessary food, for but it cannot store the needed oxygen to the same extent” Cooper, K., Cooper, M. (1998). In order to achieve this performance, he demonstrated a specific training is required to “force” the body to improve the system responsible for oxygen transport.

The literature cites medical research aimed at identifying the effects of exercising under aerobic regime on persons who have various types of diseases, highlighting cases of improvement of conditions of multiple sclerosis, diabetes, rheumatoid arthritis and lupus erythematosus, as a result of tailored programs and dosed in terms of intensity, duration and frequency of work, noting that the main effect of these subjects was the significantly reduced chronic fatigue.

Studies made in recent years depict the idea that the health of the population is burdened in an alarming extent by the presence of stress, disease of modern civilization.

Thus, physical exercise can be considered a natural, affordable and enjoyable “medicine”, which is within the reach of anyone who wishes and intends to use it as (when, where, how) required.

The positive effect of movement on health is reflected by the improvement of functions of all organs and systems, respectively, in our case, carbohydrate metabolism is improved by increasing muscle capacity to extract (retrieve) glucose and fat from blood, using it to obtain energy.

The physical effort that we should work on must be vigorous, sufficiently intense, continuous, to cause pleasure, the level of demands should increase progressively, to avoid overstressing and injuries, the practice must be monitored (at least initially) by a specialist who must indicate correct movements and to dose the
effort, as well as the required time to rest, sequence of exercises, number of repetitions.

Practicing Aerobic Gymnastics and Fitness is a sum (cumulation) of aspects that lead to health improvement. A body subjected to a regime of physical exercise according to the own possibilities of movement is less exposed to the risk of disease, acquiring increased resistance to pathogens, by the resistance offered by biological adaptation to stress (translated into increased capacity of body organs and systems). The link between mental health and physical health should be equally analyzed. It is known that the energy and emotional imbalances are accompanied by functional disorders of organs, which favor the occurrence of diseases. The fact that Aerobics and Fitness bring their significant contributions to the harmonization of individual’s emotional and energy sphere allows us to appreciate that they can improve a person’s health by changing and improving mental states, by changing the affective and perceptive mood towards the human self and psyche, in other words having a positive, optimistic attitude.

REFERENCES

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