

ROLE OF RECREATIVE EXERCISES IN HEALTH SUPPORT OF DIABETIKERS

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Abstract

Exercising takes a significant place in the life of a contemporary human being, but it is also important the tool of prophylaxis and therapy for different health disorders. Physical exercise significantly increases functional and working abilities of organism, and thus increases general resistance of that organism. Taking into account that today, physical inactivity is considered to be the basic factor of the risk of many diseases, especially cardio-vascular, it is believed that regular physical activity represents a very important part of a healthy way of life of a modern human being.

Keywords

Diabetes, bio- psycho-social well-being, physical activity, health improvement.

1 INTRODUCTION

According to the definition of World Health Organization that “Health is not just the absence of disease, but complete physical, psychological and social well-being”, the ability of a successful fulfilling of physical assignments and keeping functional integrity are a very important part of good health. Diabetes mellitus belongs to the group of metabolic diseases and is characterized by hyperglycaemia which appeared because of the defect in the secretion of insulin or because of the defect in its effect or because of the both disturbances. It appears because of the action and complex interactions of different factors, above all genetic factors, external factors and the very way of life. These processes lead to a disturbance or complete interruption of the creation of insulin or lead to the disturbance in the binding of insulin for the cells of the

peripheral tissue. Hyperglycaemia that appears and that is a characteristic of diabetes is a consequence of a reduced consumption of glucose, and/or its increased production.

Physical activity is mostly mentioned as the preventive form of protection from the appearance of this problem, but it is also a very important part of the treatment of patients in order to regulate the level of glucose in blood. Namely, according to the type of disease, physical activity increases sensitivity of cells in an organism to insulin, so that the cells of the tissue increase their ability of binding insulin, and people with diabetes who exercise can increase the intake of glucose (food) with the same concentration of insulin or reduce the doses of insulin. This useful effect of exercising depends on the fact whether diabetes is under control before the beginning of exercising. It means that glucose in blood before the beginning of

exercising should be within the normal values.

Diabetes Mellitus Type 1 which is under control shows the reduction of glucose in blood during exercising, showing better control, and on the other hand, if an adequate dose of insulin was not taken before exercising, that leads to the increase of glucose in blood. The reason for the different response is in the fact that with the controlled diabetes, there is enough insulin and glucose can be brought into muscles during exercising, and it can be counted on normal increase of glucose released from the liver thanks to the action of catecholamine and glucagon.

Diabetes Mellitus Type 2 presents another type of disease, when exercising is the basic recommendation taking into account that this type of diabetes is more often joined with obesity. Combination of exercising and diets can even eliminate the need for insulin and medications for stimulation of insulin secretion. Everyday exercising of low intensity, longer duration in combination with a diet (low fat) is recommended. Every exercise is characterized by certain intensity, frequency, duration and type of activity. A recommended physical activity which contributes to the improvement of health is certainly the moderate, regular one, which beneficially and usefully affects all the functional systems, and the whole organism, and which, by increasing the working ability, increases the general resistance of that organism. This is, of course, possible only if it is a healthy organism. But, the previous researches have shown that regular programs of physical activities lead to the prevention and improvement of symptoms of cardiovascular diseases, diabetes, some cancers, psychosomatic diseases (depression), and

that causes the improvement of physical form, the feeling of pleasure, reduction of stress, overweight, increase of the thickness of bones, reduction of the frequency of arthritis and balance of metabolic processes.

The intensity of exercise should be moderate, up to 50-70% above the pulse in the state of rest, 50-75% of maximum oxygen consumption, 120-200 kcal/per day, and those exercises which engage big muscular groups and which can be performed continuously and rhythmically (cyclic) in aerobic conditions and in the open space are emphasized of all the recommended forms of exercising.

2 OBJECTIVE OF THE STUDY

The main objective of the present study was to analyse determinants of prophylaxis and prevention of recreation exercising of persons with diabetes mellitus from the area of central Serbia.

3 METHODS

Considering the possibilities of prophylaxis and prevention of recreation exercising with people with diabetes mellitus, a research was conducted on 46 persons of both sexes of age from 46 -64 from the area of Kruševac (central Serbia) who were diagnosed with the mentioned disease Diabetes Mellitus Type 2. The questionnaire was made of 15 questions considering general and specific anamnesis and it was anonymous: age, educational degree, profession characteristics, current health state, interest for doing sports recreation actively and passively, intensity and kind of activity. The gained results

were processed by the method of the basic statistics and presented in percentage.

4 RESULTS AND DISCUSSION

Before the beginning of any exercising, it is necessary to analyse the health condition in details and recommend an individual exercise program in accordance with age and degree of disease.

The population of the 46 examinees, in age 49 – 64 years old, belongs to the patients which have put their disease under control. Many of them claim that they do not have the disease any more (15 persons/32.6%), while 31 persons/67.4% controls diabetes and blood pressure. They exercise recreationally from 1 to 5 years in continuity.

The level of education is in range of secondary (28 persons/ 60.4%), higher (12 persons/ 26.1%) and high (6 persons/ 13.5%). Working position (some of them are retired people) is in state administrative business (33 persons/ 71.4%) and in productive plants (13 persons/ 28.6%). The examinees claim that their working position is static (10 persons/ 21.7%) and dynamic (36 persons/ 78.3%).

The level of stress at work is different: 11 persons/ 23.9% has or had a stressful working position, 26 persons/ 56.6% has a stressful working position and 9 persons/18.5% has a very stressful position. The passive recreation (following sports events) is done by 39 persons/ 84.8%, while 7 persons/ 15.2% of them has no time for that. Even 100% of them do active exercising for habit or a doctor's recommendation. 38 persons/ 82% of them exercises every day, while 8 persons/17.4% of them exercises from time to time.

It is interesting that most of examinees 41 persons/ 89.6% did actively some sport in youth (including club and school sport), while 8.9% did not. 56.6% of them trained actively, 17.4% up to one year, 56.6% from 1 to 5 years and 16% more than 5 years.

During the previous years, 43 or 93.4% of them spends time in nature, while only 6.6% do not have conditions for that. Hiking is the most common form of activity and 84% of the examinees practise it. Of recreation sport activities, sport games are done by 28 persons/ 60.1% (basketball, handball, football, volleyball), while 39.9% does other athletic disciplines (swimming, walking in mountain, box, judo, hunting, fishing, fitness).

These data are confirmed by the fact that the part of the population gravitates in a rural part or a city suburb what means the way of life far from the city noise, more hard work in a house and on fields which are regularly cultivated, most often completely singly. The encouraging fact is that the examinees have the high level of consciousness about the significance of the physical exercising for health.

Physical activity increases the sensitivity of cells in an organism on insulin, so that the cells of the tissue increase the ability of binding insulin. Body mass is controlled by physical activity, so that a person who loses body mass increases the control of the glucose level in blood. With the continuous, regularly dosed recreational exercising, regular controls of glucose are also a key factor in preventing the complications of Diabetes Mellitus Type 2.

Authors fully agree with analyses of the problematic “physical activity and Diabetes” in Sigal, Armstrong, Colby, et al (2013), that people with diabetes should be prescribed and encouraged to incorporate regular exercise as a key part of their

treatment plan. For most people with and without diabetes, being sedentary is associated with far greater health risks than exercise would be. However, before beginning a program of vigorous physical activity, people with diabetes should be assessed for conditions that might increase risks associated with certain types of exercise or predispose them to injury (Colberg, Sigal 2010; Fernhall, [Riddell](#), Burr 2011).

Examples of such conditions include severe autonomic neuropathy, severe peripheral neuropathy, preproliferative or proliferative retinopathy and unstable angina. Preproliferative or proliferative retinopathy should be treated and stabilized prior to commencement of vigorous exercise. People with severe peripheral neuropathy should be instructed to inspect their feet daily, especially on days they are physically active, and to wear appropriate footwear. Although previous guidelines stated that persons with severe peripheral neuropathy should avoid weight-bearing activity, recent studies indicate that individuals with peripheral neuropathy may safely participate in moderate weight-bearing exercise provided they do not have active foot ulcers ([Lemaster](#), Mueller, Reiber, et al 2008). Studies also suggest that patients with peripheral neuropathy in the feet, who participate in daily weight-bearing activity, are at decreased risk of foot ulceration compared with those who are less active ([Lemaster](#), Mueller, Smith, et al 2008)

5 CONCLUSION

Regular adequate physical activity reduces cardio-vascular risk factors, which in combination with diabetes lead to

arteriosclerosis of the heart and blood vessels, reduces the level of serum lipids, and reduces stress. With the assumption that insufficient of physical engagement exists even in children of pre-school age within educational institutions and out of it, insufficient „athletic literacy” of teachers, parents and children is increasing. The primary goal of health prevention should be to increase the level of children’s health according to increase the level of athletic culture, giving educative and entertaining contents to a family, children and teachers and opening kindergartens toward a local community for everyday work with children (preventive exercise, morning exercise, motor activities, musical rhythmic games...), they do not use starting elements of sports sufficiently, what is the consequence of not being sufficiently informed about sports, i.e. insufficient „athletic literacy“.

Exercising has a huge psychological efficiency. Establishing control over diabetes affects other areas of life. Self-confidence increases, dependence of medications is smaller, stress is lesser, pleasure is present, psycho-physical well-being also, and the control over the disease is the control over the most important part of one’s own life – body and emotional health.

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