

## TOWARD THE HEALTH THROUGH SPORT

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**Abstract:** *The health is the most important element of human life, which leads to a numerous investigations of that area. Healthy people have the will to live, are vital and experience a sense of well-being. A healthy person can be called only person with the established physical and mental balance. Sport as physical activity is important because of the positive impact it has on the development of individual physical strength, making it attractive for the entire population, especially for young people. Sport is part of free time and makes people happy and joyful in those moments of games and entertainment. Tension and negative energy as a consequence of modern life can be successfully channeled through sport. Studies have confirmed that sport and physical activity reduces stress and depression symptoms in children and adults. Regular physical activity is essential for proper physical, mental, psychological and social development. Sports include physical activity that develops and maintains the health of muscles, bones, joints and ligaments. Sport has a positive effect on the body weight, fat and blood pressure. Regular athletic activity has a significant impact in the prevention of chronic diseases. Besides the positive effects on the heart muscle, regular physical activity has a positive impact on the reduction of the degree of atherosclerosis through increased fat metabolism and increasing the elasticity of large arteries. The basic steps are the dietary treatment of obesity procedures and movement therapy. For the reduction of body fat, suitable aerobic activities: walking, running, swimming, etc., which involve large muscle groups. Physical activity can be seen as an effective tool in the prevention and treatment of anxiety and depression. When people live an active lifestyle, there is a sense of self-esteem and a sense of control of its own life. Regular physical activity has a positive effect in terms of stimulating and protecting brain function. It is necessary to systematically approach and to solve problems according to preferences and interests of students, to offer an appropriate program of activities. The first steps of a systematic approach must be based on research that will provide enough valuable information necessary for the proper planning and setting goals and objectives.*

### 1. THE HEALTH

The health is the first and greatest value in life. People who are healthy have the will to live, are vital and experience a sense of well-being. A healthy person can be called only person

with the established physical and mental balance. Healthy people are exempt from the pressure of everyday life, anxiety and depression. The old Latin proverb says, „Mens sana in corpore sano”. It is the result of long experience of previous generations, as an expression of knowledge and awareness about the sources and foundations of human life and health, but also enduring determinant of life and development of all generations.

Every generation in history has put the life and the health in the foreground as core social and individual values. In developing, enriching and protecting these values in all generations, in all social systems, in all social circumstances, the indispensable role of sport had. Systems, rulers, economic and social order, social values, customs and way of life have changed through the history, but no ruler, no order, did not dispute the importance of sport and sports competitions. On the contrary, they were all aware of the social, ethical, driving force of sport and sports competitions, and tried to use it, some in favor, some to the detriment of their own people and humanity as a whole. For these reasons, the sport has been and still is one of the enduring, essential determinants of the human civilization. Today, as for centuries, we cannot imagine a society without sports and recreational activities. This fact has now become apparent only at the global level and social demands, new, different, more meaningful and responsible social engagement in the development of sport, health and education in the sport.

## 2. THE SPORT

We could say the sport is as old as humankind is. Sports activities have existed in all times and cultures and had different forms of expression and different meaning. Beginning in prehistoric times, people have organized various forms of entertainment and the cult games with elements of sport that we could recognize even today. Sports at the time of Sparta were the main method of physical and mental preparation of boys and young men in military skills and military campaigns. In modern times, sport has become a means of quality use of leisure time in order to maintain and develop the mental and physical strength of the individual. Sport has evolved from the game as the oldest form of education. The original meaning of the word sport comes from the Latin verb „dis - porto” which means to blow, to scatter, scatter it, keep minds off.

Sport as physical activity is important because of the positive impact it has on the development of individual physical strength, making it attractive for the entire population, especially for young people. Sport is a part of leisure and makes people happy providing joyful moments in these games and entertainment moments. The importance of sport can be observed in the domain of integration and socialization of individuals in society, and this is achieved by voluntary and unforced socializing through sports.

## 3. THE ROLE OF SPORTS ACTIVITIES TO MAINTAIN AND IMPROVE THE HEALTH

Sport, helps people becomes better, stronger, skilled, and healthier and constantly strives to mental and physical improvement. Sport is a very important factor in the manifesta-

tion of man's intense mental and physical resources. In that way, sport influences the maturing, self-knowledge and self-realization (Čokorilo, 1998). Playing sports provides an opportunity for the individual to experience success in a relatively short period of time. This ability influence the development and strengthening of self-confidence, and this role of sport in the development of adolescents as a vulnerable population is very significant. Sporting activity has beneficial effects on emotional health. Tension and negative energy as a consequence of modern life can be successfully channeled through sport. Studies have confirmed that sport and physical activity reduces symptoms of stress and depression in adults. One of the more recent researches, including boys and girls ages 8 to 12 years at three schools in the United States, revealed that inactive children are more depressed than active children who regularly go in for sports (Thompson, LM, et al., 2003). Many professions of modern society are exposed to stress and the managerial profession is at the top of the scale of the most stressful occupations. Maintenance of health and prevention of „management disease” is one of the most common diseases of modern society; it is possible only with the implementation of sports activities and recreation of managers (Radosavljevic, 2005).

Sports can be placed in the field of education and in this sense it can provide great influence in life values, such as, for example, the competitive spirit. It binds us to that principles of honorable and fair game in sports arenas, transmit in all other areas of social life and work, in particular presenting the sport as a good way to combat sex based discrimination or disability, and to combat racism.

Technological developments in terms of the informational achievements have significantly responsible for weakening of the physical activity of children and youth. Young people increasingly realize their social needs through the Internet. In this way, they become „dependent” of that kind of communication and social communication. Reduced physical activity and interest in playing sports are visible in each age category and represent a serious problem of youth development. The form of physical activity, which corresponds to a certain standard program, exists in schools. Sports are represented in the scope of planned curriculum as well as a varsity sport in the third class of physical education. Curriculum covers only certain sports (handball, basketball, volleyball, football, athletics and gymnastics), which significantly limits the choice of students. This is one of the limiting factors in terms of motivation and commitment of students for a particular sport. That is one reason why students are engaged in active sports and opt for one of these sports. Material conditions also determine what will be included in the plan of actions to implement. Schools that have rooms, equipment and props can fully implement all the activities and provide students with adequate contact with popular sports.

„European Year of Education through Sport” project is created to develop a sport through new trends in sports, a wider community, which eliminates the risk of sitting lifestyle, social isolation caused by the application of new technologies, all kinds of discrimination and respect for the true values of sport embodied through the ideals of Olympic Charter emerged from kalokagathia.

The link between the sport and beneficial effects on health is not questioned for long time. Many studies have shown that water sports activities leads to high quality physical condition. Another aspect of these studies shows that inactivity becomes a risk factor for many diseases and a major health problem for society. Regular physical activity is essential for proper physical, mental, psychological and social development. Habit of exercising should

be developed within children at the earliest age. In this way, the likelihood that children will go in for sport when they become older and more aware of the importance when they grow up increase. Sports include physical activity that develops and maintains the health of muscles, bones, joints and ligaments. A large number of schoolchildren have postural disorders (flat feet, X/O legs, kyphosis, lordosis, scoliosis). Researchers conducted in nineties have suggested there are about 60% of schoolchildren with these shortcomings. Today, there is an increasing number of studies including schoolchildren where 90% of them have some sort of postural disorders. The number of obese children in the population of schoolchildren is constantly increasing. The level of development of motor abilities of today's children is very low. Children do not know the right way to move, to walk, to run or to jump. Of course, this situation has a direct impact on the health status of children, children's resilience and ability of an organism to resist disease, the development of organ systems and body functions. Conditions of life in the modern era are the direct culprits for the appearance of hypokinesia, as the most important factors that influence the abnormal physical development in children. The diet has a significant factor affecting these problems. All these findings clearly indicate to us that it is necessary to create necessary conditions for proper physical growth and development of motor skills in children. Habit of physical education should be created from early childhood as a necessity of modern man living in urban areas. The habit of regular sports that can be made in youth is easy to maintain in times of middle and older age. Active sporting habits youth is the best prevention of potential disease of modern society that can occur in the elderly.

Although schools use physical education classes, the body's curricula are physically under stimulated, in relation to the needs of the developing child. Many schools in Serbia have no gym. Few schools have outdoor sports facilities. Many schools have a problem with a lack of equipment and devices necessary for the implementation of quality physical education and sports activities in the various sections. So even physical education teachers may not realize all the movement activities that would prevent the diseases we were talking about.

A moment of becoming a schoolchild is critical in terms of physical strain in children caused by many factors: mostly sitting in classes, carrying heavy school bags, feeble and poorly formed body, and inadequate nutrition. These are factors that generally lead to bad posture and postural disorders, which often lead to deformity. Analyzing posture status of children and muscle weakness shows it is easy to conclude that the apparatus exercises (swinging, strongholds, attitudes, endurance) are necessary for the proper formation of the child's body. It is noteworthy exercise combined with athletic activities (walking, running, jumping, throwing), followed by swimming, basics of the martial arts (falls, pulling, tug, pushing) and sports games (football, handball, basketball, volleyball, tennis). When children undergo such a comprehensive program of training, success in the proper formation of the child's body and their motor skills are guaranteed.

Sport has a positive effect on the body weight, fat and blood pressure. Regular athletic activity has a significant impact in the prevention of chronic diseases. Heart rate is the best indicator of heart muscle as well as general health. Average resting heart rate is 60-80 beats per minute. While the heart rate of athletes drops to 40 beats per minute, the sedentary person can reach 100 beats per minute. With regular exercise, heart weight increase, so it can respond to efforts that are more intensive. At the same time, the heart rate decreases, so use less energy and oxygen, generating more work. For this reason, it is important to

measure heart rate and based on that determine the type of exercise, duration, and the ultimate goal to be achieved. Monitoring of heart rate, using heart rate monitor, exercising become more efficient and safer, as the reaction of organism to physical activity is shown moment-to-moment. Heart rate at rest is the number of heartbeats per minute, in the morning, shortly after waking up. In trained people is always lower, and in elite athletes can go up to 30 beats per minute. Decrease in heart rate at rest suggests improved fitness, while increased heart rate at rest suggests overtraining, possible dehydration, emotional stress, poor sleep habits, disease, poor nutrition or a combination of two or more factors. A lower heart rate is a physiological advantage, because the heart works more efficiently and uses less energy than a heart with a higher frequency for the same amount of blood flow (Djordjevic, 2003). Heart attack and cardiovascular disease take about one million lives per year, which is significantly more than the total number of U.S. casualties in the four major wars in the previous century (636 282). American Heart Association in 1993, aligned lack of physical activity in a group of primary risk factors along with smoking, high cholesterol and high blood pressure (hypertension, and so recognized and emphasized the importance of physical activity. Inactive people are as much as 56 times more vulnerable to heart attack due to the exhaustion in relation to people who exercise regularly and among which the rate risk increases only five times under the heavy load (Sharkey, JB and Gaskill, ES, 2008). Physical activity has multiple effects on the health of the human body. Besides the positive effects on the heart muscle, regular physical activity has a positive impact on reduction of the degree of atherosclerosis through increased fat metabolism and increasing the elasticity of large arteries.

#### 4. OBESITY

Overweight (obesity) is one of the major health problems of the developed world. One study shows that in most developed countries over 50% of the adult population is overweight, and the number of obese people is increasing. Only in some cases, the cause of obesity is a metabolic disorder, while the majority has the energy imbalance problem. A person's metabolism is adjusted in that way that, when food intake exceeds caloric needs, placing deposits of the excess energy as fat. Obesity threatens mostly people older than 30 years, though; there are plenty of younger people, mostly females, with a significant increase in body weight. Proportion of fat in the body weight is 15% up to 18% for men and from 20% up to 25% for women with normal body weight status. In cases of obesity, up to 35kg of fat (fat) can be present in the human body, which makes up more than 65% of total body weight. As a rule, the excess fat deposition is performed in women in the area of the pelvis and the thighs, and in case of men, in the stomach area. If the fat content exceeds 20% in men and 30% in women, such a person is considered obese. Obesity causes shortness of breath and fatigue during physical exertion. Although obesity is a health problem, it is often associated with various diseases of cardiovascular system, musculoskeletal system and metabolism, such as hypertension, diabetes, and elevated cholesterol, osteoarthritis of the knee or hip. Physical inactivity caused in 2000 around 1.9 million deaths worldwide. On the general level obesity was in 10-16% the cause of breast cancer, colon cancer and diabetes, and in about 20% of cases the cause of ischemic heart disease (World Health Report, 2002). In case of the obesity, the heart beat rate is extremely uneco-

nomical, and manifest a strong increase in heart rate during physical exertion. Weakness, fatigue and shortness of breath are symptoms that are often noticeable in obese patients not initially result in heart disease, but the disparity between the capabilities of the heart and the increased demands of the body. Severe obesity increases the workload of the heart, and the result of chronic heavy load is a heart enlargement. Respiratory disorders occur because of changes in respiratory mechanics. The high position of the diaphragm, the increased curvature of the thoracic spine, reduce respiratory motion due to the deposit of fat in the thorax and respiratory muscles, causing interference, leading to a reduction of lung capacity and lower values of respiratory parameters. The consequence of this is an increased need for oxygen, which hardly can be met because it is contrary to the above mentioned. Obese people are predisposed to many diseases: diabetes, increase levels of cholesterol and triglycerides in the blood, hypertension, atherosclerosis and the development of myocardial infarction. There are noticeable and pronounced degenerative changes of the locomotor system, especially the joints of the lower extremities and the spine. Flat feet and varicose veins of the lower extremities are common. The biggest mistake parents make in cases of obesity in their children and the appearance of flat feet due to excessive obesity is paying the attention to the purchase of orthopedic devices in the form of inserts or orthopedic shoes instead direct their energies to forming habits of proper nutrition and sports activities of their children.

The basic steps of obesity treatment are the dietary procedures and movement therapy. The program for the reduction of body weight is an attempt to show that it is not difficult to change your eating habits formed and general human activities. Although we do not know all the causes and mechanisms of obesity, we know that our knowledge is sufficient for taking concrete steps towards mitigation or curing of inherited obesity. These steps involve radical changes in diet and sporting activities. Reduction of body mass implies movement therapy, which is recommended with the combination of weight loss diets. The load should be gradual, depending on age, sex, state of physical fitness and obesity. It is wrong to think that the purpose of the movement is that increasing the burning energetic materials, directly reduces weight. The usual intensity of exercise is generally not high enough to significantly reduce the impact of increased mass. Just every day, hard physical work lasting several hours can lead to a significant increase in metabolic processes, in order to have the effect on the reduction of body weight. Physical exercise and physical activity affect the restructuring of the distribution of body fat, keep the skin tone and subcutaneous tissue, and it has a psychological effect. For the reduction of body fat, aerobic activities: walking, running, swimming, etc. are suitable, which involve large muscle groups. The essence of sport and movement therapy is determined by the rate at which energy is provided solely from aerobic sources. The intensity at which obese people generally consume fat, as an energy source, is up to 50% of the maximal intensity, i.e., at 120 to 150 heart beats per minute, which will serve to consume carbohydrate and proteins partially. Studies have shown that the best results in the reduction of body weight could be achieved by a combination of exercise and diet. It has been proven that there is no statistically significant difference between continuous and interval training methods when the volume and intensity of exercise is equal to (). To include the fat in the process of providing energy for muscular work, you need a hormonal response. This answer requires about 20 minutes, so the scope of practice should be half an hour or more. Such exercising will not lead to a heavy fatigue (low intensity), so that the frequency of training can be on an

everyday basis. The most effective activity in the reduction of body weight is brisk walking and running. Calories are not only consumed during exercise. Studies have shown that the metabolism is accelerated for several hours after a workout, so almost the same amount of calories is consumed during the recovery period as during exercise. It is important these calories come mostly from fat. Therefore, the best thing is to practice in the morning or before noon so the metabolism is accelerated during most of the day. It is important not to eat before, during and after exercise for some time, as in that case the energy would be used from food, not from body fat. It is a good to practice in the morning and do not eat three hours after that, because then the metabolism is accelerated and thus burning fat. It is advisable to drink plenty of fluids, especially water. Physical activity helps to expel waste products of metabolism. It is necessary to drink at least 2-3 liters of fluid per day. You need to drink water before you feel thirsty because thirst is often a sign of partial dehydration.

## **5. THE INFLUENCE OF SPORT ON MENTAL HEALTH**

The first association regarding the positive effects of sport on the human body is the physical health, although the sport has equal effects on mental health. Physical exercise can produce a variety of physiological and biochemical changes in the body, then a change in ways of thinking and experiencing ourselves and the environment, contributing in that way to better mental functioning and mental health (Durakovic et al., 1999). Data collected in epidemiological studies indicate a positive correlation of physical activity and mental health. Physical activity can be seen as an effective tool in the prevention and treatment of anxiety and depression. Anxiety is defined as a feeling of constant threats of unknown origin, accompanied by the characteristic feelings of uncertainty and helplessness. Physical activity reduces the level of anxiety and is recommended as an effective tool in situations of tension and concern about the everyday problems and responsibilities. Numerous studies have shown a positive effect of physical activity on reducing the level of anxiety. Tests conducted at the police officers, firefighters, athletes and patients, have shown that training and improved physical fitness repressed anxiety as a personality trait (Sharkey and Gaskill, 2008, according to Landers and Petruzzi, 1994).

Physical activity has a positive effect on reducing depression and its prevention. Depression is a specific mental condition that involves sadness, decreased self-esteem, pessimism and despair. Symptoms of depression are different - pain, irritability, lack of criticism, withdrawal, and thinking about suicide. Regular physical activity provides an excellent means of combating stress and tension of everyday life. Physical activity occupies the mind with nice thoughts that automatically decreases the tension characteristic of thinking about everyday problems of different types. Physical activity can be seen as a vent that allows a man to expel negative energy and negative thoughts and focus on relieving feelings of comfort. Physical activity is also a form of meditation with full positive effect. In active lifestyle, there is a sense of confidence and a sense of control of its own life. Regular physical activity has a positive effect in terms of stimulating and protecting brain function. Experimental research conducted on animals that were forced to physical activity in terms of running the hamster wheel, showed that physical activity had effect on gene expression changes in the formation of the nervous system that have emerged. In these animals was observed an increase in molecular neurotropic factors that prolong the survival of

neurons, support the learning process and protect against cognitive decline (Sharkey and Gaskill, 2008, according to Cotman and Engesser-Cesar, 2002). The studies that included physically active people have shown that older people who exercise three or more times a week, rarely suffer from Alzheimer's disease and old age dementia.

## 6. MOTIVATION IN SPORTS

A large number of people, of different ages, gender, social engagement, political beliefs, and religion deal with sport. People deal with sports of different beliefs, attitudes and interests, so the difference in the motives of sports can be seen as a completely natural thing. Motives are very important in the sport and they are a significant factor in sports efficiency and strongest support in the process of keeping the sport, Tomić (Tomić, 2001). The school population is aware of the importance of sport for their health. The results of research in sports motif in primary and secondary schools shows that. The survey was conducted in four primary and eight secondary schools in Zrenjanin in the period 10.03.2010 - 20.05.2010, and 794 subjects were included. The research results indicate that health, mental and physical development and the impact of sport on mood are strong incentives for the school population. These results are quite logical given the fact that the sport in this region is identified with health. Starting from parents, through teachers, professors, to literature and media, children learn about the importance of sport and its role in the maintenance of health.

The research results indicate that primary and secondary students seen sport as a factor directly affecting the health. They perceive health as the most powerful motivator for sports.

## 7. THE ROLE OF PARENTS, SCHOOLS, GOVERNMENT AND THE MEDIA IN PROMOTING SPORTS AND HEALTHY LIVING

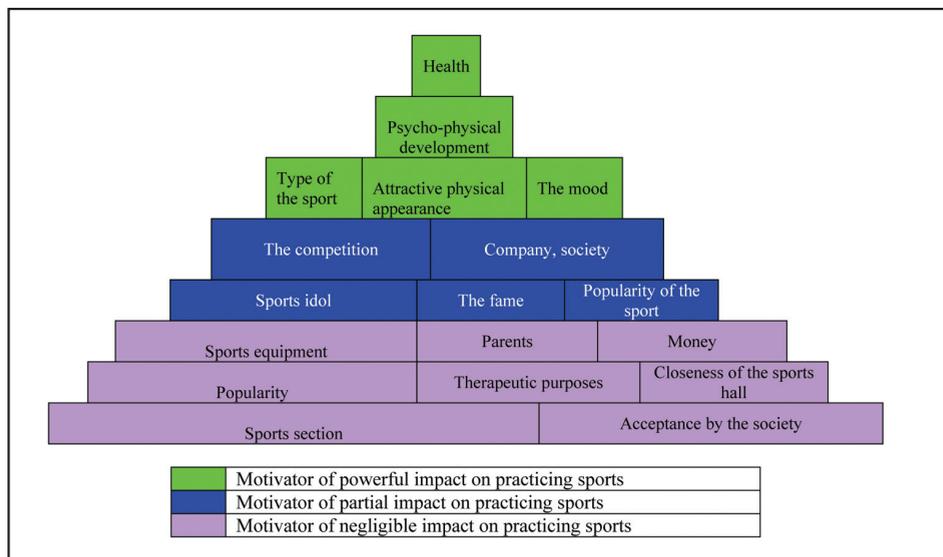
First contact of children with knowledge about the health and its importance in daily life is related to the first year of life. Parents are the first and most important source of information about health and that is why it is necessary for parents to devote their full attention to the ways and methods of directing children towards health habits. Health habits acquired in early childhood are the basic foundation of health.

Educational institutions have a major impact on health behaviors and attitudes about health development of children and youth. The educational process must include health as a field of education of children and youth, from preschools through elementary and secondary schools, to vocational school in the field of medical and sport science (secondary vocational schools, colleges, universities). The school system has an educational role and is necessary to make a greater impact on the widening of youth activities in the direction of health education. Apart from cases dealing health areas and active impact on youth through formal learning, it is necessary to affect the implementation of creative actions, promotions, sports and health programs, etc.

Given the values that sport is embedded in society, a sport has become a factor that contributes to human education. UNESCO on many occasions stressed in its documents the need for associating sport, curriculum, and activities that contribute to the overall devel-

opment of the personality in relation him/her, physical development and cultivated social habits.

**Figure 3:** The pyramid of motivators



At the European level, several experiments that have been set as a test of educational programs related to sports organizations were conducted. For example:

- „Sport-school” pilot activity, which also included three European Olympic Committee with provisions to use the Olympic values and principles in school activities
  - Activities within the Socrates program to promote academic exchanges, and others
- Europe has always been committed to the educational values of sport and in this way gained a reasonable opportunity to raise awareness on co-operation of educational and sport organizations, building their wider partnership in order to use the sports activities in education more appropriately.

## 8. RESUME

We are witnessing the emergence of new diseases that are the product of modern technological processes and relations of production, such as cancer, cardiovascular, respiratory diseases, allergies, stroke, AIDS, etc. Through the media and permanent reminding of positive effect of physical exercise on reduction of these diseases today, we came to the categories of citizens who became truly aware of and committed to make room and places for recreation in everyday life.

The physical activity in schools is represented the form that corresponds to a certain standard program. Sports are represented in the planned curriculum as well as a varsity sport during the third class of physical education. Curriculum covers only certain sports (handball, basketball, volleyball, football, athletics and gymnastics), which significantly

limits the choice of students. This is one of the limiting factors in terms of motivation and commitment of students for a particular sport. That is one reason why students are engaged in active sports and opt for one of these sports. Material conditions also determine what will be included in the plan of actions to implement. Schools that have rooms, equipment and props can fully implement all the activities and provide students with adequate contact with popular sports. For the reduction of sports activities, schools are also to blame. Increasingly smaller number of schools organizes sports section to support physical activity in the curriculum. The greatest number students the first contacts with organized physical activity and sports activities experience in schools. This is the right place and time to motivate children to become involved in sport and making sport habits. It is necessary to systematically approach and solve problems according to preferences and interests of students, to offer an appropriate program of activities. The first steps of a systematic approach must be based on research that will provide enough valuable information necessary for the proper planning and setting goals and objectives.

Besides the parents, the educational institutions must provide important influences on students' interest towards the sport, not individually, but in combination with sports organizations. Sports organizations should be seriously involved in the sense of observation of students as a population to whom sport and sporting activities are necessary, as well as a population that can be a serious and targeted market group. Kastratović states that one of the basic and most important steps in the process of strategic marketing planning is a skill to recognize target market. Market research must recognize the cause of dissatisfaction or partial satisfaction (Kastratović, 2012). Only cooperation between the Ministry of Sports, Ministry of Health, sports organizations and associations and media organizations can contribute to the promotion of sport and its importance for the health of individuals and society as a whole. Sports colleges should be involved in projects to promote sports and implementation of sports action, which would also constitute an excellent practice and provide experience for the students as future employees in the field of sports.

## REFERENCES

- [1] Čokorilo, R. (1998): *Pedagogija sporta. Viša škola za sportske trenere*, Beograd;
- [2] Duraković, M. M. i sar. (1999): *Tjelesno vježbanje i zdravlje*. Grafos, Zagreb;
- [3] Đorđević, A. "Rekreacija kao način savremenog življenja". *Sportska akademija*, Beograd, Vol.5 No.2, 2003.
- [4] Kastratović, E., Dragić, M., "Motives of students of elementary and secondary schools on playing sports" *International journal of law & economics*, vol.1, No.3, 2011.
- [5] Koković, D. (2000): *Sociologija sporta*. Sportska akademija, Beograd;
- [6] Lazarević, Lj. (2001): *Psihološke osnove fizičke kulture. Viša škola za sportske trenere*, Beograd;
- [7] Milanović, Z. i sar. "The Effects of Physical Exercise on Reducing Body Weight and Body Composition of Obese Middle Aged People", *HealthMED - Journal*, Vol.6, No.6, 2012, 2171-2184.
- [8] Ostojić, S., Mazić S., Dikić, N. (2003): *Telesne masti i zdravlje*, Beograd;

- [9] Radosavljević, Ž. (2005): Menadžment medicine. Agencija za marketing EdCom, Beograd.
- [10] Sharkey, J. B., Gaskill, E. S. (2008): Vežbanje i zdravlje. Data status, Beograd;
- [11] „Slučajevi smrti i raka, dijabetesa i srčanih oboljenja vezanih za fizičku neaktivnost: Svetska zdravstvena organizacija, World Health Report, 2002, SZO, Ženeva, 2002;
- [12] Tomson, L. M., i sar. (2003): „Childhood Depressive Symptoms, Physical Activity and Health Related Fitness#, Journal of Sports & Exercise Psychology, Vol 25, No 4, page 419;