

PROFESSIONAL ARTICLE**Bojan Bjelica, MSc¹, Ana Randelović, MSc²**¹Faculty of Physical Education and Sport, University in East Sarajevo²Faculty of Sport and Physical education, University in Niš

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**SPORTS AND RECREATIONAL ACTIVITIES AND THEIR IMPACT
ON THE QUALITY OF LIVING OF THE ELDERLY****Abstract**

Signs of aging can be noted analyzing the simple things such as slower walking pace and difficulty climbing the stairs, lack of interest for things that used to make them happy. It is represented by constant use of organism and there is no way to escape it. It is also proven that sport recreation as freely chosen activity, individually, in a group or being planned to be organized has great significance for wellbeing and improvement of health of the elderly. Positive impact of sport and recreational activities to overall human system provides not only beneficiary impact to mobility but also better respiratory and cardiovascular functions and positive state of mental and emotional reaction. Recommendation for healthy and motivated people who got doctor's approval to do exercise is to exercise continuously two or three times a week under constant supervision of an expert in that area.

Key words: *sport recreation, seniors, quality of life, activities*

1. INTRODUCTION

Human being as a living creature started to search for better living possibilities from the moment of creation. In further development a desire for prolongation of life emerges and a theory of immortality starts to be created. Aging is a normal process and we can make definite comparison in human growth and development observing the differences in the direction of observation. Upon reaching its maximum of age body starts to become weak and it loses most of living functions. Retrospective aging can be divided into two groups: the first group consists of natural aging processes, i.e. the changes in nervous system, blood stream, entire system of organs as well as external appearance, spinal bend, skin aging and many other factors; the second group is characterized by caused aging and by that term we consider difficult life, stress, problems and all of the above mentioned reflects in great extent to the quality of living and life expectancy. There is a lot of diversity in the changes of functional abilities caused by aging and such changes do not occur simultaneously and at the same pace inter-individually and intra-individually (Duraković, M., 2003; Duraković, Z., 2007). We can create

the third factor which causes damage to the functioning of human beings to great extent and that is illness. According to the more recent classification the elderly are men aged over sixty and women aged over fifty five (Pržulj, 2006).

2. METHODS

During the preparation work was used descriptive comparative method separated from a large number of the literature content. Most people this age do not perform activities they used to perform in the course of their life. Signs of aging can be noted analyzing the simple things such as slower walking pace and difficulty climbing the stairs, lack of interest for things that used to make them happy, slower use of tools etc. Impact and practice of recreational activities has great significance for the elderly, especially in the area of physical and psychological balance. The aim is to discharge bad habits and most of stressful situations and try to live as more prosperous life as possible. Significance of recreational activities in youth is great and it has the same impact to organism of the elderly but we need to stress out that the process of making progress is significantly slower. If we take strength for example, it develops at old age but not at such fast pace which is age appropriate. Working example (Seong-il Cho&all, 2014) was made on 43 subjects average age of seventy eight using fitness test and exercise in the course of eight weeks and as a result there was great improvement in muscle strength, flexibility and balance of the elderly. One set of exercises once a week to fatigued muscles improves strength, twice a week for the elderly. *Movement is the main source of health. Immobility is its grave. Movement can replace a lot of medication but all the medication can not replace movement. Walking means longer living. (Tissot, French physician).*

3. RESULTS

3.1. AGING AND CHANGES IN ORGANISM

Aging is process which starts from the moment of conception. It is represented by constant use of organism and there is no way to escape it. It is difficult to discuss it until we become active participants of that period of life ourselves and until we start feeling the changes in our body. We can observe first changes on human skin which becomes wrinkled, dry and cracked. In time, melanocytes, stem cells in hair follicles, die and hair starts to lose its color. Bones become fragile and weak which causes feeling of skeletal weakness and dullness. Number of changes is large and we will state just the basic ones but beforehand we need to make division of age to:

1. Chronological age or our life span or *how long do we live?*
2. Biological age or answer to the question *how old is our body?*

Biological aging has two theories: microscopic and macroscopic.

Microscopic is divided to: genetic (DNA mutation, programmed aging), non-genetic (crossed links, use and wear-out, waste products).

Macroscopic (physiological) are divided to: organic theories (cardiovascular, reproductive, hypothalamus and thyroid) and system theories (neuro-endocrine, immune and central nervous system).

The greatest attention is paid to physiological indicators. There is a large number of indicators which make difference between organism of the elderly and of the young. Some of the changes are: *heart* – hollow muscle which pumps blood through blood vessels, through the process of aging it reduces its effectiveness and becomes weaker. Each year it takes more time for it to contract and relax; *bones and muscles* – during aging muscle mass and tone (sarcopenia) occurs and the result of it is weakening and loss of bone mass (osteoporosis). Osteoporosis causes a number of injuries and breaks because bones are weaker and their quality is reduced. Intake of supplements, especially calcium and sufficient amount of vitamin D can reduce frequency of bone injury (Durand-Gasselin, B., 2010). During activity muscles generate mechanical stress which is very important for bones. In the course of aging activity reduces, mechanical stress as well, which creates domino effect. Minerals in bones also reduce and it is known that bones degrade faster than they regenerate; *Brain* – in the course of life brain also becomes worn out, just like muscles so a lot of changes occur and loss of certain functions takes place; *eyesight* – a lot of changes occur here as well and we see a lot of elderly people using aids for this organ. Depth and sharpness of vision reduce and we know this is the only link with the outer world. Perception and color distinction reduces to smaller circle; *Hearing* – sharpness and clarity of information from outer world becomes less clear; *Taste* – reduction in the distinction between sweet and savory occurs, savory becomes more pronounced.

3.2 IMPORTANCE AND CONTRIBUTION OF SPORT RECREATION TO HEALTH

It is determined that movement apparatus of a normal human being enables living to the age of hundred and fifty years. It is also proven that sport recreation as freely chosen activity, individually, in a group or being planned to be organized has great significance for wellbeing and improvement of health of the elderly (Timotijević, 1977) for the following reasons:

- Circulation of blood increases in the organism which improves tissue nutrition and extrusion of harmful metabolism products (matter exchange),
- State of muscles, ligaments and joints improves, which increases effects of their function; muscles become more elastic, tougher and more resistant,
- Cardiovascular system increases its activity. Blood vessels contract more easily, blood is distributed through the organism in the manner that the blood from blood depots (reservoirs) – liver, spleen, subcutaneous tissue – is redirected to more active organs and systems. Heart, being the main pump, sends blood throughout the organism and works automatically under control of nervous and endocrine system.

People who get involved in recreational activities can maintain or improve their health condition and in that manner expand life span. People who engaged in physical activity prior to old age and practiced any kind of physical activity have easier access and adaptation to recreational activities (Hirvensalo & all, 2000). Physical activity is “any kind of action of skeletal muscles resulting in energy consumption greater than one in stationary state” (Caspersen & all, 1985).

3.3. HOW TO START SPORT AND RECREATIONAL EXERCISE?

It is determined that psychological drop has great connection with hypokinesia i.e. reduction in movement, hence creating more difficulty than the old age.

In order to involve elderly person into the area of sport recreation we need to be creative, we need to be motivators and use certain kind of marketing and propaganda in order to focus their attention to positive aspects of these programs, unless the person took the initiative personally knowing the positive impact of exercise to organism.

Special attention needs to be paid to the fact that the elderly are not like young people, that their movement is not fast and that various contemporary medical conditions create extra difficulty. Stating out some of the difficulties, we suggest the beginning of program to start with obligatory medical check-up. Health issues are often a great obstacle for practicing physical activities (Kim Lim & all, 2005). Only with doctor's permission further selection of participants may continue and groups need to be formed according to load distribution and manner of program execution. We will state a couple of examples which are common in practice: blood pressure related conditions. If the person is using medication for this condition tempo of the activities and exercises which has negative effect to that condition needs to be stated out clearly. If we are dealing with diabetes, permanently high glucoses level in blood caused by reduced influence of hormone insulin, we need to pay special attention. These are only two examples out of many we can encounter. Each exercise starts with 5-10 minutes of initial warm up and finishes with stretching with similar duration. It is recommended to make 4-5 minutes break after each exercise in order to achieve partial pulse stabilization.

3.4. LOAD DOSAGE

Average number of heart beats in adult, mainly healthy person is 60-80 beats per minute in stationary state. The most relevant indicator of pulse in stationary state can be measured right after waking up on carotid artery or inner part of forearm on the thumb extension. Beats are usually count within 15 seconds period and multiplied by 4 in order to get number of beats per minute.

During activity elderly person should not cross the border of 115 beats per minute. We will provide certain load zones and demonstrate determination of heart rate (HR):

- Low intensity 50-60% max HR- warm-up zone
- Medium intensity 60-70% max HR
- Higher intensity 70-80% max HR
- High intensity 80-90% max HR
- Very high intensity 90-100% HR-red zone

Heart rate is something we can easily determine ourselves using this formula:

- $180 - \text{age} = \text{number of beats/min}$

- *For example* $180 - 63 = 117$

Each person can calculate desirable heart rate for each zone:

- *For example* $117 \times 70\% (0.8) = 94$ (which is good because it does not cross the line of 115 beats/min)

Table 1. Overview of some symptoms at different load levels. It allows doctor, coach and kinesiotherapist to evaluate level of effort for individuals (Medved 1987).

	Small load (less fatigue)	Medium load (medium fatigue)	Large load (strong fatigue)	Signs of overload during and after training
Skin color	Light red	Strong red	Pronounced redness or paleness of the face	Pronounced paleness or cyanosis
Sweating	Little or medium	Medium or more in the upper body	Extreme sweating of entire body (night sweat)	A lot of sweating of entire body
Breathing	A bit faster	Fast, occasionally through the mouth	Strong and fast breathing through the mouth	Fast breathing, dyspnea
Movement	Easy performance of movement	Occasional difficulties walking, small disturbances performing medium-difficult tasks	Occasional staggering, lack of precision, insecurity	Significant amount of difficulty in performance of movement, significantly reduced precision, lack of strength even after 1-2 days
Focus	Full focus in demonstrating well accepted direction	Incorrect execution of directions	Lack of attention while explaining, less acceptance of stereotypes	Significant amount of difficulty in performance of movement, very reduced precision and lack of strength even after 1-2 days
Feeling	No difficulty, good mood	Medium fatigue lasting 2-3 hours	Difficulties, muscle pain, joint pain, fatigue lasting 24 hours	Feeling of weakness in muscles and joints for a long time, pain around heart and liver, difficulty sleeping, fast pulse even after 24 hours, lack of appetite, feeling irritated
Capability	Willingness to continue the training	Desire to take a break but willingness to continue the training	Willingness to stop the training	Unwillingness to continue the training

3.5 CHOICE OF SPORT AND RECREATIONAL ACTIVITY

In order to achieve certain heart rate and leave positive trace to our cardiovascular and respiratory system it is best to start with walking. *Walking* is the most natural and easiest way of moving which is established 9-18 months after birth. Walking and its tempo for the elderly needs to be adapted and supervised. Speed of movement should be around 6 km/h or approximately 130 steps per minute. It is essential to learn how to walk adequately. One should not be tricked into thinking that walking as a kind of movement brings positive effects for the elderly because slow walking does not provide significant energy consumption. That tells us to make intensity level higher. Terrain configuration enables us great choice in type of movement but it is recommended to choose mild slopes and walking up the hill. If we choose walking, it should not last less than 30 minutes a day.

Running - light pace is the best advanced form after walking. Nonetheless, people with arthrosis (degenerative change in joints) need to evade this type of activity because it can bring certain complications. This type of activity is beneficiary for breathing and heart, circulation and movement in general. For people under stress it is significant to take up swimming, walking or trekking on combined terrain. High stress levels influence adrenalin and noradrenalin levels so attention should be paid to partial organism stabilization. Sport games, competitions and high intensity activities have counterindicative effects. Other activities recommended for the elderly are:

- *Swimming* (pay attention to water temperature),
- *Skiing* (pay attention to equipment; not recommended to the obese),
- *Running on skis* (less chance to get injured than skiing, highly recommended),
- *Table tennis* (eliminate competition system),
- *Bocce*,
- *Pendulum bowling*,
- *Cycling* (pay attention to safety),
- *Tennis* etc.

We have provided a number of activities which can be performed by the elderly. The greatest interest, motivation and affirmation for sport recreation practice have to be provided by the expert. The best effects are achieved working in small groups sorted by health and training condition.

4. CONCLUSION

Elderly people can advance, maintain and improve their health to great extent. They can improve the way of living and extend life expectancy. Sport and recreational activities, aerobic exercise in general, are the best choice for people of old age. Positive impact of sport and recreational activities to overall human system provides not only beneficiary impact to mobility but also better respiratory and cardiovascular functions and positive state of mental and emotional reaction. Only regular exercise may provide the results of great importance for any individual. Recommendation for healthy and motivated people who got doctor's approval to do exercise is to exercise continuously two or three times a week under constant supervision of an expert in that area.

5. LITERATURE

1. Andrijašević, M. (2000). *Rekreacijom do zdravlja i ljepote*. Zagreb, fakultet za fizičku kulturu, *udžbenik*
2. Caspersen, C., Powel, K., Christensen, G.,(1985). Physical activity, exercise and physical fitness: definitions for health-related research, *Public Health Reports 1985, 100 (2)*, 126-31
3. Duraković Z i sur. (2007.) *Gerijatrija - Medicina starije dobi*. Zagreb: Ctposlovne informacije.
4. Durand-Gasselín, B. (2010) Osteoporosis in the elderly. *Soins Gerontologie*, 83, 11-14.
5. Hirvensalo, M., Lintunen, T., Rantanen, T. (2000). The continuity of physical activity – a retrospective and prospective study among older people. *Medicine & Science in Sports*, 10 (1), 37-41.
6. Kim Lim, B.Ec., M.Appl.Stat., Lee Taylor, M.B., B.S., M.P.H., F.A.F.P.H.M (2005). Factors associated with physical activity among older people—a population-based study. *Preventive Medicine*, 40 (1), 33-40.
7. Lepad, Ž., Leutar, Z. (2012). Važnost tjelesne aktivnosti u starijoj životnoj dobi. *socijalna ekologija Zagreb*, 21(2), 203-223
8. Mišigoj Duraković M. (2003.) *Telesna vadba in zdravje*. Ljubljana : Fakulteta za šport u Ljubljani i Kineziološki fakultet u Zagrebu.
9. Medved, R. *Sportska medicina*. JUMENA, Zagreb, 1987. Mišigoj, D., M. Značaj tjelesne aktivnosti i sporta za zdravlje. U: *Interna medicina*. Ur. Vrhovac B. Zagreb, Naprijed, 1997, str. 11–14.
10. Pržulj, D. (2006). *Sportska rekreacija*. Univerzitet u Istočnom Sarajevu, fakultet fizičke kulture, *udžbenik*, 51-52
11. Seong-il, C., Duk-hyun, A., Won-gyu, Y.(2014). Effects of Recreational Exercises on the Strength, Flexibility, and Balance of Old-old Elderly Individuals, *Journal of Physical Therapy Science*, 26(10), 1583-1584
12. Timotijević, S. (1977). *Rekreacija i produktivnost rada*. Značaj rekreacije u organizacijama udruženog rada, Beograd, *udžbenik*, 27-28