

## THE ASSESSMENT OF THE WELLNESS PROGRAM'S EFFICIENCY ON THE PSYCHOLOGICAL WELL-BEING IN A GROUP OF MEN AND WOMEN AGED BETWEEN 50 AND 65 YEARS

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### **Abstrakt**

*This article is focused on the effect of the physical activity program on the psychological well-being in a group of men and women aged between 50-65 years. We used these methods for diagnostic: a bespoke questionnaire focused on motivation, the standardized POMS questionnaire (Profile of Mood States) to measure actual psychical state items and three exercises of the standardized test battery UNIFITTEST (6-60) to test motor efficiency.*

*The first questionnaire analyzed the motives of respondent for entering the program. The results showed that the most frequent motives are the pleasure of movement, the improvement of physical fitness, the need of active relaxation and the relief of stress. The results of the second questionnaire ascertained statistically significant effects in two items of the actual mood state – tension and fatigue. The physical activity program reduced anxiety and at the same time it caused a drop in feelings of fatigue. The test of motor efficiency was conducted in three selected exercises – long jump from a spot, sit-up repeatedly and deep bending forward a sitting position. It showed that the program has a statistically significant effect on the efficiency in all three selected motor exercises that were undertaken by respondents.*

*There were 16 people involved in the research, 3 men and 13 women. The average age was 57,8 years. The physical activity program was given two times a week, each lesson lasting 60 minutes. It consisted of two types of exercises. The first type of exercise was focused on developing balance abilities and engendering muscle balance. The second type of exercise – health physical education – was focused on the maintenance and improvement of flexibility and the development of muscle power and stamina. Respondents could participate in one or both of the exercises every week.*

### **Keywords**

*quality of life, motoric tests, physical activity, Profile of Mood States, well-being*

### **INTRODUCTION**

Ageing is traditionally associated with psychological changes. In terms of emotionality, elderly people tend to be more suggestible and therefore easily influenced, more likely to be inclined to fear, for example, from falling, fear of no self-sufficiency, or loss of a close person and loneliness resulting into an anxiety or depressed mood of the senior, may occur. It might change values and needs also attitudes towards other people and society (Vágnerová, 2007).

In general, we can say that quality of life in old age is highly influenced by functionality of the health (in particular, mobility, cognitive abilities, pain and depression), upbringing and education, value system, personality characteristics, property conditions, the social network including the family, friendly environment, the effectiveness and real availability of support services and early interventions - healthy, social, psychotherapeutic and spiritual. (We watched a group of 50-65 year-olds in our work, not just the real

senior's age, but described changes are in progress since the sixth decade.)

A constructive age managing strategy is usually associated with an active lifestyle and regular targeted exercise. With a number of specific benefits, both somatic and psychological. The key issue is motivation to do the physical activity.

The survey about motivating older people to do physical activities has shown that the most prominent motivating factor is for elderly people a circle of friends who are related to the exercise, secondly, medical reasons and recommendations from GP, and the third most important motivational impulse is an example from the family environment. The most frequently cited factors that keep seniors away from a regular physical activity are physical factors (illness, fitness, health), mental factors (not feeling like an athlete and thus not experiencing the feeling); social factors (feeling ridicules or intimidated), and environmental factors (poor accessibility, poor training environment). It has been shown that the rationale reasons for regular exercise is not enough to simply rationalize the motivation, that is to say, that physical activity is beneficial for health. People also need an emotional experience of motion, the joy of the atmosphere and the cooperation as part of the exercise (Štílec, 2013).

The psychological benefits of physical activity in old age have been demonstrated by a number of scientific studies. Significant is its effect on the cognitive function.

Stuart-Hamilton (1999) states that a healthy body is certainly more powerful, utilizing the nervous system better, and thus the psyche works better. An older person who feels well and healthy will have more self-confidence and hence a higher motivation for a good performance in mental activities.

Hátlová (2010) sees the benefits of regular exercise in a gradual increase in self-confidence. Seniors perceive the

value of exercises in gaining new experiences and new social contacts. A positive phenomenon is increased vitality, at the same time, the joy of finding their condition and health improving. It is proven that exercise helps maintain brain function, slows down cardiac function deterioration, muscle deterioration and joint immobility. Seniors who regularly practice physical exercise have better image of themselves.

Ettinger et al. (2006) understands the positive effects of physical activities in old age in controlling body weight, reducing the risk of diabetes type 2, certain types of cancer (e.g. breast, bowel, prostate and lung cancer), maintaining strong bones, relieving joint stiffness, and memory improvement and self-sufficiency.

According to many authors the benefit of physical exercise is primarily in terms of self-confidence and fitness, in maintaining the extent of joint motion, in preventing a large number of illnesses, bad moods and in delaying the ageing process. Of course, it is necessary to take into account the progressively aggravating physical condition of the ageing person whose increasing age is decreasing ability to move, changes in balance occur which, together with deterioration of visual abilities result in poor coordination of movements and influencing the walk and posture of the body.

Hošek (2013) points out the contribution of physical activities in the social field, which is comparable to the biological benefits of the anatomical-physiological field or even more significant. One of the main problems of seniors is loneliness. Elderly people often prefer to practice alone due to the shyness, unwillingness to personal presentation and social comparison, including awareness of the decline in performance and aesthetic moments in the area of their own physicality. The social benefit is, above all, mainly overcoming the isolation, loneliness, social response and social support in joint

activities, group experiences, fun, group creativity and game moments.

### **OBJECTIVES AND CONCEPTS OF EXERCISE PROGRAMS FOR THE ELDERLY**

One of the basic conditions of maintaining mobility associated with personal independence of the elderly is sufficient strength that is related to the amount of muscle mass.

Strength training is the key to preventing the development of sarcopenia (Cruz-Jentoft, 2010). The effects of strength training are highly specific, depending on the type of exercise, on the muscular groups involved and on the chosen exercise. The basic requirement for building the muscles is to maintain the balance between strength, stretching and relaxing the muscles. The intensity of the strength load should be only 30-60% of the maximum muscle strength. Simple exercises with rubber belts, overballs, gymnastic balls, kalanetics or other forms of isometric work out, resp. work out on the ergonomically designed fitness simulator. Strength exercises are also effective in maintaining bone quality and preventing the development of osteoporosis. The motion range of joints can be maintained by appropriate stretching exercises. Endurance training is particularly important in the field of prevention of cardiovascular diseases.

With age is the impact of various diseases and weaknesses increasing, which exacerbates the tactile sensitivity, muscle strength, visual control, and range of motion, which is manifested by certain instability of the posture and a general decline in coordination and dexterity. The continuous maintenance of coordination skills through physical activities is of undeniable importance for the elderly in terms of the prevention of injuries and falls.

In order to stimulate coordination skills, coordinated more intensive exercises are used, more complicated activities involving more muscles,

simultaneous movements of the torso and limbs in different directions and according to different axes. Acquired exercises are also carried out under changing conditions, as automated skills are no longer contributing to the further development of coordination skills. When developing the coordinating skills, must be taken into account the age and ability of the individual senior. Exercise must be reasonably fast and coordinated, mostly focused on the limbs. Agility-coordination exercises of the body must be integrated very carefully, as there is a risk of the balance loss. Equally dangerous are fast motions with rotations, turns, bends, skips or positions on one leg. Suitable exercises include, for example, simple sets of easy exercises, round dances, fun games and changes in direction of motion in a limited space, step variations and balance exercises (Štilec, 2013). Simple balancing exercises are also important for preventing falls of seniors, especially at later senior's age.

### **SENIOR FITNESS PROJECT**

The Senior Fitness project was originally named "Exercise for Every Day" in the mid-1980s at Faculty of PE and Sport, the Charles University. The aim of the project was to create conditions for the physical activities of seniors and individuals in the pre-elderly.

Currently, the Senior Fitness Project provides regular exercises for various age and performance groups of seniors, including those who are physically weak. The aim of the program is to maintain and extend the mobility of seniors and stabilize patients with chronic illnesses.

Within the Senior Fitness Project, exercise lessons are held in gyms, fitness centers and other sports centers in almost all Prague's city districts; another exercises are organized outside the capital city (e.g. in České Budějovice, Liberec, Brno and others).

The Senior Fitness Project can be accessed by anyone regardless of age,

but the most appropriate and also the most represented age group is people over 50 years old.

The program of individual exercise lessons is designed to improve the physical and mental health of seniors. The basics of training units are elements of psychomotor exercises and physical healthy exercises (i.e. coordination and balance exercises, relaxation, stretching and work out exercises, breathing and relaxing exercises, gymnastics, exercises with music, fitness, sports games, exercises in water and swimming). The intensity of the exercise and the content of the exercise lessons are always adapted to the physical and psychological status of the trainees. The Senior Fitness Project also organizes tourist trips, sightseeing trips and sports and recreational stays in the Czech Republic and abroad.

The main benefits of regular physical activity in the Senior Fitness Project are physical and functional development, fixation and maintenance of physical abilities, maintenance and improvement of motion and skill habits, compensation of unilateral motor activities and bad habits, stress reduction, social bonding in group activities and the discovery of health complications with subsequent redirection to the medical and rehabilitation care.

## **MATERIAL & METHODS**

Our goal was to find out if the physical exercise program within the Senior Fitness project can positively influence the components of the actual mental state of the group of men and women aged 50-65, i.e. whether their psychic status can be optimized through physical activity. Selected tests of the UNIFITTEST (6-60) test battery were used to investigate whether the physical condition of the test group had improved during the program course, and to assess the effect on the psyche in relation to the physical condition development.

The researched group consisted of a

group of men and women between the ages of 50 and 65 who voluntarily chose the physical exercise program within the Senior Fitness Project to improve their physical and mental fitness. The youngest respondent was 50, the oldest 62 years. The average age of the respondents was 57.8 years. The total number of people surveyed was 16, of which 13 were women and 3 were men. From the point of view of gender, women prevailed. The reason for this was the reluctance of men to take part in the research or their age beyond the limit for this research.

First, contacting Eva Ondříková, who leads several sessions for seniors within the Senior Fitness Project. Ms. Ondříková began practicing in 1996 as one of the founding members and lecturers of a successful female fitness club focused on reducing the weight of obese women.

In order to investigate and subsequently analyze the changes in the mental state of the examined group of men and women aged 50-65 years, two specific types of SFP exercises were selected. Together with Mrs. Ondříková, we selected a group of suitable respondents from her trainees, focusing with a suitable age group, on those respondents who entered the project or exercise at least five months before starting the research, i.e. not earlier than October 2013. These people were approached and asked to collaborate on research work. They were also acquainted with the way they were investigated and also assured of anonymity in the processing and the use of measured data.

The survey was launched in February 2014 when respondents were asked to complete the first part of the questionnaires, ie the POMS questionnaire and the motivation questionnaire. At the same time, the respondents were acquainted with the three selected exercises from the UNIFITTEST (6-60) battery test, which were performed in smaller groups.

The second part of the research took



place in October 2014, eight months after the first test. The same respondents were given the second part of the questionnaires, ie the POMS questionnaire and the motivation questionnaire. At the same time, a second round of the same tests from the UNIFITTEST test battery (6-60) was performed.

The intervention program consisted of two specific types of exercises - exercises with aids (rubber belts, gymnastic balls, overballs, and dumbbells) and "traditional" healthy physical education. Each exercise was on a different day (Monday and Thursday) regularly once a week for eight months. Respondents could attend either of these two exercises or both exercises within one week. The lesson was changed a bit, only the core exercises remained the same.

The research was carried out using quantitative methods, namely:

- Affective Status Questionnaire – POMS
- Questionnaire for finding motives to do regular physical activity of their own design
- UNIFITTEST (6-60) - selected tests.

A standardized POMS questionnaire was used to diagnose the current mental state. For statistical processing of POMS results were used non-parametric methods, namely unilateral Wilcoxon pair test. To diagnose motor performance were used selected exercises from the UNIFITTEST battery test (6-60). The statistical significance of the difference in performance in the individual tests was tested using the unilateral paired t-test.

Profile of Mood States (POMS: The original version of McNair, Lorr, Droppleman, 1971, 1981) is a method used to shape emotional states and moods, especially in connection with the need to monitor the effects of short-term therapies, psychotropic medication, sleep deprivation, induction of emotions and other similar experimental interventions into the experience of persons under the investigation. It is considered to be a quick

and economical method for detecting transient, short-term affective states. In the original version, the questionnaire contained 65 items. For the purposes of this research, the shortened Czech version of POMS (Stuchlíková, Man, Hagtvet) from 2005, was used for measuring and contains 37 items. The investigated person evaluates the offered adjectives on a five-point scale from "not at all" to "very much".

The POMS questionnaire was used twice in this work. For the first time, respondents completed it at the beginning of the program in February 2014, most likely immediately before joining Senior Fitness Project. At this stage of research was investigated how respondents felt at the beginning of the research before the start of the intervention program. Again, the same respondents filled in questionnaire after eight months in October 2014. At this stage the survey found out how respondents feel after a period of regular exercise activity in the past eight months.

The purpose of the measurement was to compare the mental state of the group of men and women aged 50-65 at the beginning of the intervention program and after eight months. The input data were imported into the R software, The R Project for Statistical Computing (version 3.22), statistical analysis using unilateral pair Wilcoxon Test.

The questionnaire focused on the motivation of their own construction respondents received at the beginning of the research in February 2014 and at the end of the survey in October 2014. The time from the entry of the respondent into the Senior Fitness Program, motives for SFP entry and the expectations of the respondents from SFP was determined. If they were sporting in their youth and their main motives.

Three test exercises from the UNIFITTEST (6-60) test battery (Chytráčková, Měkota, 2002) were used to test motor performance - see Table 1.

Tab 1: Selected motor tests from the UNIFITTEST (6-60) test battery (Chytráčková, Měkota, 2002)

Marking and test name (measurement)		Exercise task (goal)	Skills set	Results evaluation (measurement accuracy)
T 1	Standing jump	Reach the longest distance jumping from a spot with legs together	Dynamic – rapid explosive – strength skill	Distance in cm (1 cm)
T 2	Laying-sitting repeat	Make max no. of repetitions changing laying-sitting position in 60 s	Dynamic endurance strength skill	No. of repetition (1 exercise)
T 4-3	Deep forward bend in sitting position	Reach the furthest with finger tips in deep bend forward in sitting position	Mobility skill	Distance in cm (1 cm)

Motor performance testing was performed twice in total. The first testing was done at the beginning of the program in February 2014, most likely immediately after the entry of the respondents into the Senior Fitness Project, the second testing was done with the same respondents after eight months, i.e. in October 2014. Four statistical methods were used for statistical evaluation: F-test, Shapir-Wilk

test, the T-test, Wilcoxon Pair Test.

## RESULTS

What are the reasons entering the Senior Fitness Project, resp. motives for physical activity by the clients, and what are their psychological and physical expectations?

Table 2: Motives for physical activity

Motives for physical activity	Frequency now	Frequency in youth
Joy from motion	9	8
Fitness increase	7	2
Active resting	7	7
Relax from stress	6	3
Social contact	5	4
Body shaping	4	0
Lower weight	3	1
Condition increase	1	2
Resilience increase	1	1
Civilization diseases prevention	1	4
Free time filling	1	0
Competition possibility	0	3
Sporting in fam. (parent-trainer)	0	2
It was modern	0	2
Self-confidence increase	0	1

The main reason and motivation for sport is the joy of motion for more than half of the respondents, followed by the motive of fitness and the possibility of active rest. While the first reason maintains the same position in the youth, the improvement in

fitness as a reason for sporting in youth has shown a negligible number of respondents. Other preferred reasons for joining SFP are to relax from stress, which is a slight increase compared to youth motivation and social contact that holds the same position.

On the contrary, a new motive appears, namely body shaping, which was not mentioned by any of the respondents in the youth. At the end of the motivation ladder is weight reduction, fitness increase, resilience increase, free time and prevention of civilization diseases.

### POMS

Will there be a positive influence, i.e. the decline in negative emotions, after the regular use of the intervention program as part of the Senior Fitness Project?

**Table 3: Data from POMS (for statistical analysis)**

	category	time	r1	r2	r3	r4	r5	r6	r7	r8
1	D item	before	0.43	2.29	1.00	0.71	0.86	0.71	0.00	0.29
2	A item	before	0.83	0.50	0.50	0.67	0.00	0.67	0.33	0.50
3	T item	before	1.00	2.00	0.67	2.33	0.67	1.67	0.33	1.00
4	F item	before	1.17	2.17	1.83	1.17	1.50	2.00	1.00	0.83
5	V item	before	1.17	0.67	2.33	0.67	1.17	2.00	2.33	0.83
6	C item	before	0.75	1.25	0.75	0.25	0.50	0.75	0.25	0.50
7	D item	after	0.43	0.00	0.00	0.00	0.14	1.29	1.29	0.29
8	A item	after	0.00	0.00	0.00	0.00	0.33	0.83	0.83	0.67
9	T item	after	0.00	0.33	1.00	0.33	0.67	1.33	1.00	1.00
10	F item	after	0.83	0.33	1.17	0.67	1.00	2.17	1.50	1.33
11	V item	after	1.50	2.00	1.83	1.67	2.00	0.67	0.83	1.83
12	C item	after	0.25	0.25	0.00	0.00	0.50	1.00	1.50	0.75

  

	category	time	r9	r10	r11	r12	r13	r14	r15	r16
1	D item	before	0.43	0.00	1.29	0.71	1.00	0.57	2.71	0.43
2	A item	before	0.17	0.00	0.67	0.00	0.33	0.83	0.50	0.83
3	T item	before	0.67	0.33	1.33	0.67	1.67	0.67	2.33	0.67
4	F item	before	0.83	0.83	1.67	0.67	2.33	1.83	1.83	1.33
5	V item	before	1.17	2.00	1.67	1.17	1.00	2.00	1.50	1.50
6	C item	before	0.25	0.25	0.75	1.25	1.75	0.50	0.75	0.75
7	D item	after	0.00	0.00	0.00	0.00	0.86	1.14	1.29	1.14
8	A item	after	0.00	0.00	0.00	0.17	0.67	0.33	0.50	0.00
9	T item	after	0.67	0.33	0.33	1.00	0.33	0.00	1.33	1.33
10	F item	after	0.83	0.33	0.67	0.67	1.00	1.33	1.33	1.67
11	V item	after	1.83	1.67	2.00	1.67	1.83	1.83	1.83	1.83
12	C item	after	0.25	0.25	0.00	0.50	0.50	0.50	0.25	0.75

Reliability of the data obtained was measured using a Cronbach alpha coefficient. The detected value of 0.74 is higher than the 0.7 limit and therefore the data obtained can be considered as sufficiently reliable.

The given data is based on the questionnaire; it is not possible to assume the distribution normality. Therefore, non-parametric method namely the unilateral

Wilcoxon pair test was used for testing. Tested was always zero hypothesis that the rating in the category did not change against the alternative (i.e. reducing average response, with the exception of category vitality, where improvement means an increase in the average response). The Wilcoxon pair test results are reported in Table 4.

**Table 4: Statistical analysis of POMS results**

Category	V-value	p-value
D item	23	0.06192
A item	27	0.05765
T item	13.5	0.0248
F item	15	0.009791
V item	92.5	0.1065
C item	14.5	0.05388

The statistical evaluation clearly did not show that there would be a positive influence after the regular use of the intervention program, ie the decrease in negative emotions, respectively the increase of positive emotions. From six tested categories of emotion had only two statistically significant influencing, namely tension and fatigue.

However, it should be noted that in the other three categories the level of tests was just above the 5% threshold. It can therefore be assumed that if more

respondents were included in the research or if the research lasted longer, the test strength would increase and zero hypothesis would be rejected even in these cases.

#### **UNIFITTEST (6-60)**

Will the regular performance of the Senior Fitness Project intervention program have an efficiency improvement of the selected exercises?

**Table 5: UNIFITTEST (6-60) - Average measured values**

Marking and test name	Average measured value (at <b>BEGINNING</b> of the research) <b>MEN</b>	Average measured value (at the <b>END</b> of the research) <b>MEN</b>	Average measured value (at <b>BEGINNING</b> of the research) <b>WOMEN</b>	Average measured value (at the <b>END</b> of the research) <b>WOMEN</b>
<b>T 1 Standing jump (in cm)</b>	127,00	<b>133,67</b>	95,62	<b>97,69</b>
<b>T 2 Lying-sitting in 1 minute (repetition no.)</b>	21,00	<b>24,33</b>	20,54	<b>21,85</b>
<b>T 4-3 Depth of bend forward (in cm)</b>	3,33	<b>9,67</b>	17,08	<b>17,69</b>

It is clear from the results that in all motor tests men and women, in terms of average, have improved performance. For men, improvement in average performance is more pronounced as their physical condition was weaker at the start of the program than women's. The most noticeable is the improvement of men in

the T1 and T4-3 tests, where average performance improved by more than 6 cm. It was the expected development, as both intervention exercises are aimed, among other things, at increasing mobility and flexibility.

With the UNIFITTEST (6-60) motor tests, it was found that the performance of



the test subjects in all three selected exercises improved after a six-month intervention program (statistically significant at 5% significance level).

## DISCUSSION

The motivation questionnaire method was used to determine the motivations of respondents to enter the Senior Fitness Project. Most notably, the joy of motion was related to the physical activity, followed by the motive of improving fitness and the possibility of active rest. Other motives include relaxation from stress and social contact. The marginal motive was, for example, body shaping, weight reduction, resilience, leisure time and prevention of civilization diseases.

In a similar study of Mudrak, Slepicka and Slepickova (2013) aimed at motivation for physical activity in seniors aged over 60 years, the most important motivational construct showed perceived self-efficacy and social support. The results suggested that physical activity may not primarily be related to planning and exercise strategies, but may be largely habituated reflecting previous experience with physical activity. This trend can be seen in our research, with 13 out of 16 respondents having an active sporting or physical activity experience from their youth.

From the above, it follows that respondents expect to benefit from their participation in group exercises not only in terms of physical and social part, but also psychologically. This confirms the importance of physical activity for feeling of satisfaction, which is based on subjective experience and contributes to maintaining the necessary physical and mental performance (Krivohlavy, 2013).

The aim of the work was to find out if the physical program as part of the Senior Fitness Project can positively influence the components of the current mental state of the group of men and women aged 50-65. It is generally accepted that there is a desirable relationship between

physical activity and psychological status, as presents Hendl (2007) in surveyed studies, as (Arent et al., 2000). It emerged that physical activity can be beneficial in emotional tuning of elderly people. When comparing age variables, older people showed even greater moods improvement than others. According to Krivohlavy (2013), the positive impact of exercises on depression, anxiety, positive self-esteem and the strengthening of the psyche in the fight against stress have been proven. Some studies have shown a significantly higher effect on the reduction of depression by means of aerobic exercise than using classical relaxation-type of psychotherapy. At the same time Krivohlavy states that satisfaction and happiness of older people has a positive relation to their activity and vitality, the higher the activity, the higher the feeling of satisfaction.

A verbal questionnaire POMS was used to diagnose the psychological status of respondents entering the Senior Fitness Project. The statistical evaluation of the measured data showed that after the regular use of the intervention program, there was a statistically significant influence, i.e. the decrease of the negative emotions, in two categories - tension and fatigue.

Stackeova (2007) in her study focused on the change of the current mental state due to fitness exercises in the fitness center, where the same type of questionnaire was used, found that the items of tension, depression and anger had a statistically significant decrease in the mean value, the item vitality had a statistically significant increase in the value after completing the training unit. Stackeova further states that the anxiolytic effect of physical activity on the psyche is mediated mostly by the change in the muscular system, with other factors such as the repetition of a certain movement in a regular rhythm. It is shown that skeletal muscle reflects the state of emotions and excessive mental tension

increases the muscle tone.

The results of the Landers study (in Hendl, 2007) from 1994 also showed the relationship between the anxiolytic effect of exercise and the initial value of anxiety and physical fitness. According to this study is bigger effect achieved in low-performing individuals or highly anxious individuals. At the same time, it has been shown the larger effects are achieved with longer programs, up to more than 15 weeks.

There is a rising need to compensate tension arising from day-to-day managing personal, work and other social activities. Therefore, an active feeling of balance based on conscious and visible relaxation and satisfying the natural need for movement must be induced. This is an important argument for not neglecting physical activity for senior practitioners.

One of the main goals of the intervention program was to improve balance in terms of balancing abilities that are directly related to posture and harmonizing the muscle tension. The statistical evaluation confirmed the suitability of the program to reduce the feeling of tension, which is in direct relationship to muscle tension. In Stins et al. study (2009) focused on the application of balancing exercises to treat individuals with anxiety disorders were also achieved positive changes in the mental state due to this exercise.

There was no statistically significant improvement in the other three categories (confusion, anger, and depression) but the level of tests was just above the 5% threshold. Therefore, it can be concluded that the intervention effect was also positive in these categories. The question remains whether a higher number of respondents or other lengths of the intervention program would increase the test power and zero hypothesis would be rejected in these cases as well.

Analysis of the motor test data from the UNIFITTEST battery (6-60) and the subsequent statistical evaluation of the performed tests showed the statistical

significance of the difference in all three tests used. The test results of the selected three exercises surprisingly showed the most significant improvements in the long jump from the spot (men improvement by 6.67 cm, women improvement by 2.07 cm). It should be emphasized that the intervention program was not targeted at the "traditional" work out for the lower limbs; on contrary the exercises with a slow controlled, experiencing the movement prevailed. Improvement of the dynamic, explosive strength of the lower limbs can be attributed to the balancing exercise on the ball, which in addition to practicing coordination skills also effectively develops the speed of reaction to various stimuli, strength and mobility. Significant improvement was also seen in men at the depth of bend (improvement of 6.64 cm), which however, due to the nature of the intervention exercise could be expected.

Although the main objective of the research was not to assess the effect of the intervention program on motor performance, the group was not sufficiently large to form a generally valid conclusion, it can be deduced from the research results that regular exercise allows a demonstrable improvement in motor skills in people over 50, (finding that, although it was a healthy exercise not an exercise with typical conditional goals, its effect on motor test results is quite large).

## CONCLUSIONS

The research has shown that there has been a statistically significant impact on two categories, namely tension and fatigue. The influence of the chosen intervention exercise on the mental state of the elderly can be specified as anxiolytic and simultaneously acting in the sense of reducing the feeling of fatigue.

The research has not shown a statistically significant positive effect, ie an increase in positive emotions. This fact can be attributed either to the satisfaction and

subjective feeling of the higher level of the respondent's vitality, or to the form of the chosen intervention exercise which in its nature did not affect feelings such as full elation, energetic, vigorous, cheerful and active, thus emotions associated with vitality.

The statistical evaluation of the results of the Motor Tests UNIFITTEST (6-60) showed that after the completion of the program there was a statistically significant improvement in all three selected tests.

The aim of the physical activity performed by a senior is not the achievement, but the personal, physical and psychological fitness of a person. Suitable physical exercises can, to a large extent, reduce age-related changes, positively influence the quantity and quality of muscle mass, and thanks to the active lifestyle, psychosocial and physical abilities can be maintained until a high age. Even a slight physical activity improves the prerequisites for physical work and, at the same time, it has a positive influence on involution psychophysical processes. Increasing physical fitness is associated with the functional independence of seniors, their self-sufficiency and better mobility, which ultimately leads to psychological well-being and positive psychic tuning. Thanks to physical exercise, mental well-being can be maintained or even improved in an elderly age, thus contribute to improving the quality of life of seniors.

**Declaration: Authors of the article have no conflicts of interest.**

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