

THE EFFECTS OF RESISTANCE TRAINING ON IMPROVING THE QUALITY OF LIFE OF INSTITUTIONALISED OLDER ADULTS

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Abstract

The aging of the population represents one of the biggest challenges that modern society is facing, which has resulted in the world's scientific community showing increasing interest in health and quality of life. The aim of this research was to determine the effects of resistance training with elastic bands on improving the quality of life of institutionalised older adults. The study included 22 older adults who were divided into two groups: the experimental group (n=13), and the control group (n=9). The research results indicate that programmed resistance training with elastic bands is an effective tool in improving and advancing the quality of life of institutionalised persons, specifically in relation to physical functioning, energy/fatigue, emotional well-being, social functioning, pain, and general health, in favour of the experimental group of subjects.

Key words: effects of resistance training, elastic bands, quality of life, older adults, gerontological centre.

ЕФЕКТИ ТРЕНИНГА СНАГЕ СА ОПТЕРЕЂЕЊЕМ НА УНАПРЕЂЕЊЕ КВАЛИТЕТА ЖИВОТА КОД ИНСТИТУЦИОНАЛИЗОВАНИХ ОСОБА ТРЕЋЕГ ЖИВОТНОГ ДОБА

Апстракт

Старење становништва представља један од највећих изазова са којим се савремено друштво сусреће, што као последицу има и све чешћа интересовања светске научне заједнице за здравље и квалитет живота. Циљ овог истраживања је да утврди ефекте тренинга снаге са еластичним тракама на унапређење квали-

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тета живота институционализованих особа трећег животног доба. У истраживању је учествовало 22 старијих испитаника подељених у две групе: експерименталну (n=13) и контролну (n=9). Резултати истраживања указују да је програмiran тренинг снаге са оптерећењем са еластичним тракама ефикасно средство у побољшању и унапређењу квалитета живота код институционализованих особа трећег животног доба, посебно у димензијама: физичко функционисање, енергија/умор, емоционално благостање, социјално функционисање, и бол и генерално здравље, у корист експерименталне групе испитаника.

Кључне речи: ефекти тренинга снаге са оптерећењем, еластичне траке, квалитет живота, особе трећег животног доба, геронтолошки центар.

INTRODUCTION

Quality of life has become one of the central topics for understanding the impact of chronic diseases, and for monitoring general well-being in the elderly population. Quality of life refers to a multidimensional construct that includes the physical, emotional, and social components of life (Rejeski & Mihalko, 2001; Drljan, Vuković, Dragaš Latas & Mihajlović, 2021). Health-related quality of life is based on the World Health Organization's definition of health as a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity (WHO Constitution, 1948). Health-related quality of life refers to a person's overall psychological, social, and spiritual state, including physical and social functioning, emotional well-being, activity, and individual perception of health (Acree, Longfors, Fjeldstad, S., Fjeldstad, C., Schank, Nickel, Montgomery & Gardner, 2006). In older adults, many factors (family ties, social contacts and activities, functional abilities, and health status) are taken into account when assessing the quality of life (Farquhar, 1995). Research (Wanderley, Silva, Marques, Oliveira, Mota, & Carvalho, 2011) recorded that 41.4% of people over 65 years characterised their health condition and quality of life as bad, or even very bad. In the same research, it is noted that 46.9% of the elderly population experience a reduction or loss of functional abilities. Quality of life is considered a significant indicator of subjective health and well-being assessment, and represents a significant supplement to biomedical health status parameters. The subjective experience of health and quality of life generates significant health information, both for the individual and in general, and represents a significant predictor of mortality, especially in regards to the elderly population (Lima, Barros, César, Goldbaum, Carandina & Ciconelli, 2009). Most of the research on the relationship between physical activity and quality of life has focused on activities aimed at improving endurance and cardiorespiratory fitness rather than strength training. However, the importance of strength training is emphasised in most global guidelines, which recommend strength training for adults twice a week to improve their quality of life and health (Chodzko-Zajko, Proctor, Fiata-

rone, Minson, Nigg, Salem, & Skinner, 2009). Research that dealt with this topic, conducted on a sample of older adults, showed that resistance training has significant benefits for the quality of life (Yasunaga, Watanabe, Park, Shepard, & Aoyagi, 2006; Bize, Johnson & Plotnikoff, 2007; Revnic, C., Nica & Revnic, F., 2007). Resistance strength training is associated with quality of life in older adults by improving physiological and psychological functioning (Sillanpaa, Hakkinen, K., Holviala & Hakkinen, A., 2012; Cassilhas, Viana, Grassmann, Santos, T., Santos, F., Tufik & Mello, 2007). The authors of a systematic review that focused on physical activity and quality of life stated the need for more research on the quality of life of older people and on different types of physical activity, especially the connection between physical activity and each of the different fields of quality of life (Bize et al, 2007). There is a specific need for more research, especially on resistance training and quality of life, because understanding how resistance training generally and specifically affects the various parameters of quality of life is an important indicator for promoting the health of third age people. Healthy aging, or active aging, is a term that describes the importance of the quality of life in the older population, and all the necessary elements that contribute to quality living, and not mere survival in the third age (Rowe & Kahn, 1987; Spirduso, 1995). The active life span in third age people can be defined as a life span without disability affecting the activities of daily life (Spirduso, 1995). The mechanisms of active aging include preservation of normal functioning through physical activity, and appropriate nutrition, but also various interventions aimed at compensating weakened functions, avoiding risky behaviour, and permanently strengthening social support. Today, the focus of science is on delaying the aging process, slowing down the loss of abilities, preserving abilities while performing work activities, and preserving independence and self-sufficiency in the daily activities of older adults, with projections of maintaining such a trend in the coming decades. A decrease in muscle strength and skeletal muscle mass during the process of aging are the two most common, significant changes of this process, so maintaining muscle mass and strength is considered to be the basic component of health, functional autonomy, and quality of life in old age (Manini & Clark, 2012). During the last few decades, numerous studies have been conducted on the effects of different strength training modalities on the health status and functionality parameters. Resistance exercise has been shown to increase strength and, consequently, improve age-related dysfunctions in terms of functional capacity and quality of life (Frontera, Meredith, O'Reilly, Knuttgen & Evans, 1988; Ades, Savage, Brochu, Tischler, Lee Poehlman, 2005; Bautmans, Njemin, Vasseur, Chabert, Moens, Demanet, & Mets, 2005; Binder, Yarasheski, Steger-May, Sinacore, Brown, Schechtman & Holloszy, 2005; Ribeiro, Schoenfeld, Fleck, Pina, Nascimento & Cyrino, 2017). External

resistance training and balance exercises benefit older adults; however, only resistance training results in gaining muscle strength and muscle mass (Lloyd & Faigenbaum, 2016). Resistance training with elastic bands has been widely accepted by older adults (Fahlman, Mcnerin, Boardley & Morgan, 2011), and has been shown to provide significant beneficial effects in the parameters of functionality and quality of life (Martins, Safons, Bottaro, Blasczyk, Diniz, Fonseca, Bonini-Rocha & de Oliveira, 2015), which is proven through research (Liao, Tsauo, Huang, Ku, Hsiao & Liou, 2018; Rieping, Furtado, Letieri, Uba-Chupel, Colado & Hogervorts, 2019). Therefore, resistance training with elastic bands represents the easiest and safest way for older adults to exercise for several reasons: it is highly applicable; it offers a wide variety of exercises; it is safe to use; it is cheap; and it is very practical.

METHOD

Sample

The sample of respondents included 22 people aged over 65 from the gerontological centre in Novi Sad (Autonomous province of Vojvodina, Serbia). The subjects were divided into two groups: the experimental group (n=13) and the control group (n=9). The experimental group was subjected to resistance training with elastic bands for 12 weeks, while the control group had a normal lifestyle without programmed physical activity. All subjects were healthy and voluntarily participated in the research. The structure of the sample in relation to gender and group affiliation is shown in Table 1.

Table 1. The structure of the sample in relation to gender and group affiliation

Gender	Group		Total
	Experimental	Control	
Male	2	2	4
Female	11	7	18
Total	13	9	22

Questionnaire

The SF-36 questionnaire represents a theoretically based and scientifically proven operationalisation of two general components that describe the concept of health – physical

health (physical functioning, role limitations due to physical functioning, pain, general health), and mental health (energy vs. fatigue, social functioning, role limitation due to emotional problems and emotional

well-being) (Ware & Sherbourne, 1992). Each answer should be recalculated according to the scoring instructions, on a numbering scale from 0 to 100. After that, the rescaled responses are summed according to the key to obtain scores on the questionnaire subscales.

Training

The experimental group underwent resistance training with elastic bands for 12 weeks. The training sessions consisted of five to ten minutes of warm-up with stretching, 35 to 40 minutes of working with an elastic band, and about ten minutes of cooling down, which included breathing and mobility exercises. The structured resistance training programme consisted of standardised volume (12 to 15 repetitions of two sets), rest between sets (1 min), frequency (2 times per week), and tempo of exercise performance (2:0 in an eccentric, and 2:0 concentric mode of work). The order of the exercises was changed every week in order to maintain the motivation level of the subjects. General resistance training recommendations for older adults are shown in Table 2.

Table 2. General resistance training recommendations for older adults

Program variable	Recommendation	Details
Sets	1-3 sets per exercise, per muscle group	1 set for beginner older adults with an increase to more sets (2 set) per exercise. Rest between sets 1 min.
Volume	12-15	Perform 12-15 repetitions with a relative load in healthy and fit older adults.
Intensity	70-85 % of 1RM	Start with a low load with a progressive increase to 70-85% of 1 RM. Low loads are recommended for beginners, that is, individuals or for people with special conditions such as cardiovascular diseases and osteoporosis. Exercises should be performed in the intensity zone where repetition is possible while avoiding fatigue in order to reduce the load on the wrists.
Exercises	8-10 different exercise	Engage major muscle groups through targeted different wrists (eg. exercises for shoulders, triceps extension, biceps curl, lower back extension, sit-ups, leg curl, lifting on toes)
Modality	With elastic bands	For beginner older adults or those with functional limitation, elastic band exercises and isometric exercises can be beneficial.
Frequency	2 times per week	Exercising 2 non-consecutive days a week
Functional exercise	Exercises imitating everyday life activities	Older adults benefit from performing dynamic movements/exercises

Data Processing Methods

The effects of resistance training with elastic bands on improving the quality of life of institutionalised older adults were tested using split-plot ANOVA (mixed design analysis of variance). The measurement point was a within-group factor, while group membership was a between-group factor. The dependent variables were scores on the eight dimensions of the SF-36 questionnaire. The effects of the interactions between the measurement point and the group were tested for the effects of training. The statistical data analysis was done within the SPSS 20 statistical software for data processing.

RESULTS

The results are presented as the mean \pm standard deviation. Each variable was tested for normality of distribution with the Shapiro-Wilk test, and, as all variables were normally distributed, parametric statistics were used.

Table 3 shows the average values of body mass and height, as well as the body mass index to describe the sample. Also shown are the differences in the effects of resistance training on improving the quality of life of institutionalised older adults, in relation to body composition indicators, body height, body weight, and body mass index, as regards the group and the initial and final measurements. The interaction effect of the group and measurement point was tested with the F test. The value of the F test is shown together with statistical significance in Table 3. Based on the obtained results, it can be seen that the average observed values of the experimental and control groups do not deviate from normal values. However, according to the classification of the World Health Organization, in terms of the body mass index, both groups are in the pre-obese category (Consultation, W. H. O., 2000). Also, the results show that the values for body mass index and body mass increased statistically significantly after the experimental programme, in favour of the control group of

Table 3. Anthropometric characteristics and the effects of interactions between the measurement point and group membership

Variable	Experimental		Control		Interaction	
	Baseline M \pm SD	Final M \pm SD	Baseline M \pm SD	Final M \pm SD	F	p
Height	157.5 \pm 8.1	/	155.6 \pm 7.9	/	0.24	0.53
Weight	67.82 \pm 11.2	67.3 \pm 11.5	69.8 \pm 18.5	71.0 \pm 18.8	5.45	0.03
BMI	27.5 \pm 5.2	27.3 \pm 5.4	28.8 \pm 7.3	29.3 \pm 7.5	5.79	0.03

Notes: F – f test for interaction of training groups and measurement points;
p – significance; M – mean; SD – standard deviation; BMI – body mass index

subjects who did not exercise. It can be said that this risk factor was controlled in the experimental group, whose members exercised regularly. An applied programme of resistance training in institutionalised older adults can significantly affect the maintenance, control, and reduction of body mass and the body mass index in the observed sample of respondents.

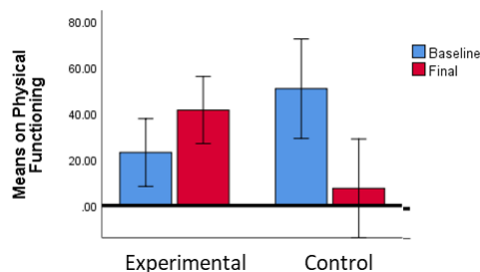
Table 3 shows the descriptive indicators of values for all dimensions for the experimental group and control groups in relation to the initial and final measurement points. The interaction effect of the group and the measurement point was tested using the F test. The value of this test is shown together with the statistical significance in Table 3. It is eminent that the interaction effects are statistically significant for almost all measured dimensions, except for the dimensions related to the assessment of work limitations due to physical dysfunction and emotional problems. In order to see the trend of changes in each of the groups, group interactions and measurement points are shown in Graphs 1 through 8.

Graph 1 shows the differences in the effects of strength training with a load on improving the quality of life of the control and experimental groups *in relation to the dimension of physical functioning*, as regards the group and the point of measurement. It can be seen that, although, initially, the control group had a higher dimension value, it had significantly lower values of the self-assessment of physical functioning at the final measurement. Also, the experimental group evaluated their physical functioning better at the final measurement. The interaction effect is statistically significant, as shown in Table 4.

Table 4. Effects of resistance training on the quality of life indicators assessed by the SF-36 questionnaire in institutionalised older adults

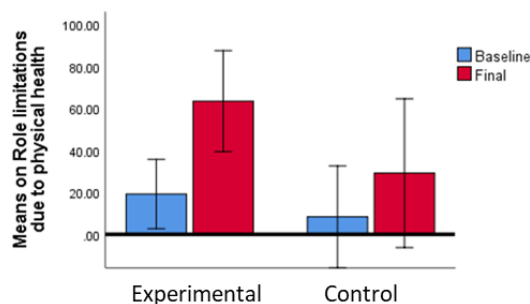
Variable	Experimental		Control		Interaction	
	Baseline M ± SD	Final M ± SD	Baseline M ± SD	Final M ± SD	F	p
<i>SF-36 dimensions</i>						
Physical functioning	23.1 ± 28.0	41.5 ± 29.1	50.8 ± 16.3	7.5 ± 8.8	32.50	0.000
Role limitations due to physical health	19.2 ± 32.5	63.5 ± 39.0	8.3 ± 12.9	29.2 ± 45.9	1.03	0.324
Role limitations due to emotional problems	18.0 ± 32.3	82.1 ± 32.3	0 ± 0	44.4 ± 50.2	0.75	0.398
Emotions/fatigue	43.1 ± 16.1	61.5 ± 17.0	47.5 ± 6.9	31.7 ± 12.9	17.32	0.001
Emotional well-being	59.7 ± 17.6	74.8 ± 12.8	62.0 ± 14.3	46.7 ± 10.9	15.20	0.001
Social functioning	40.4 ± 19.9	76.0 ± 14.8	58.3 ± 18.8	47.9 ± 14.6	13.79	0.002
Pain	50.0 ± 20.8	75.2 ± 15.4	68.3 ± 15.9	55.4 ± 13.5	10.71	0.004
General Health	47.3 ± 15.1	57.7 ± 11.5	58.3 ± 7.5	25.0 ± 12.3	25.14	0.000

Notes: N – number of participants; F – f test for interaction of training groups and measurement points; p – significance; M – mean; SD – standard deviation; Experimental – experimental group; Control – control group;

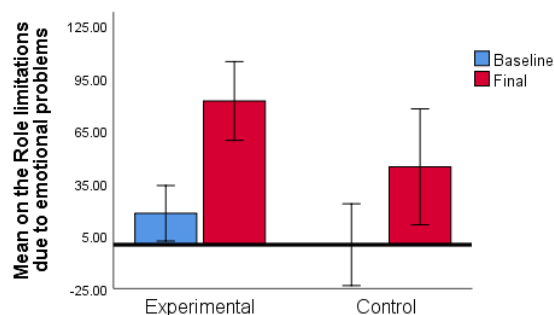


Graph 1. Arithmetic means of Physical functioning in relation to measurement points and group membership

As regards the dimensions of *work limitations due to physical dysfunction and due to emotional problems*, the interaction of group and measurement point was not statistically significant (Table 3). The arithmetic means on these dimensions are shown on Graphs 2 and 3, and it can be seen that both groups rated themselves better at the final measurement. Although the difference between the two measurements was always higher in the experimental group, it was not statistically significant.

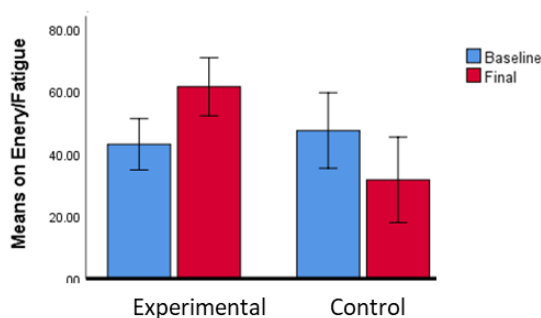


Graph 2. Arithmetic means of Limitations due to physical health in relation to the measurement point and group membership



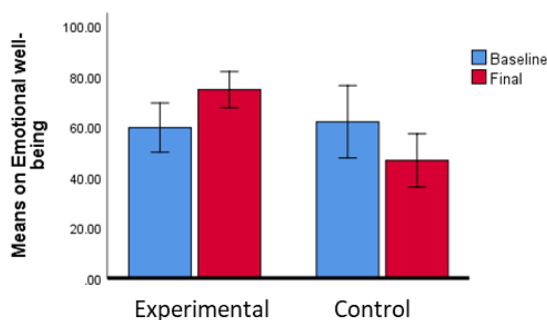
Graph 3. Arithmetic means of Limitations due to emotional problems in relation to the measurement point and group membership

When it comes to assessing how much energy the subjects feel, i.e. how much fatigue they feel, the subjects from the experimental group at the final measurement achieved higher values compared to the control group, which is shown in Graph 4. The interaction of the group in the measurement points is statistically significant, which can be seen in Table 4. Statistically significant findings reveal that the exercise group experienced enhanced well-being, including increased energy levels and reduced fatigue, in comparison to the control group.



Graph 4. Arithmetic means of the Energy/Fatigue dimension in relations to the measurement point and group membership

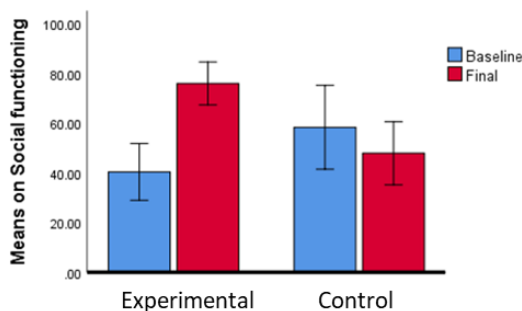
The mean values for emotional well-being are presented in Graph 5. It is noted that subjects from the experimental group were in a better emotional state after strength training, while lower values in this dimension were recorded in the control group. This difference is statistically significant (Table 4).



Graph 5. Arithmetic means of Emotional well-being in relation to the measurement point and group membership

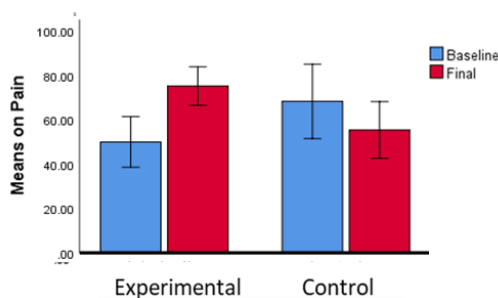
When assessing social functioning, subjects from the experimental group again assessed that they functioned better than the control group. The control group again had lower values on this dimension at the final

measurement. The interaction of the group and the measurement point was statistically significant, which is shown in Table 4. This result indicates that the subjects from the experimental group, feel more emotionally stable and have more energy, and therefore achieve a greater number of social contacts, due to better physical functioning.



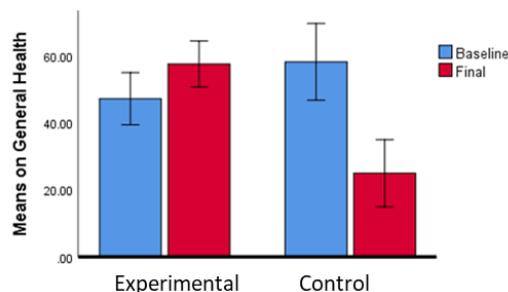
Graph 6. Arithmetic means of Social functioning in relation to the measurement point and group membership

When assessing how much pain they felt, and how much it hindered them in their daily functioning, Graph 7 shows that the experimental group felt significantly better compared to the initial measurement, but also compared to the control group. This group and measurement point interaction is also statistically significant (Table 4).



Graph 7. Arithmetic means of the Pain dimension in relation to the measurement point and group membership

Finally, on the dimension of general health, a statistically significant interaction of group and measurement point was again recorded (Table 4), whereby respondents from the experimental group assessed their general health better than the control group at the final measurement. Graph 8 shows that the subjects in the control group evaluated their health significantly worse at the final measurement.



Graph 8. Arithmetic means of General health in relation to the measurement point and group membership

DISCUSSION

The generally accepted point of view in the professional and scientific community is that the application of strength training with resistance on a sample of third age people has many benefits, and that it significantly improves the general health and physical independence of older adults, but also leads to improvements in a wide range of attributes classified under the term ‘quality life’ (Liu & Latham, 2009). Physical activity plays a significant role in healthy aging and the promotion of quality of life (Puciato, Borysiuk, & Rozpara 2017; Langhammer, Bergland & Rydwik, 2018). Quality of life is defined in professional and scientific literature as a relevant indicator of the subjective experience of health and well-being, and is considered an important additional tool that, along with traditional biomedical indicators, defines an individual’s health status. Quality of life is generally conceptualised as a multidimensional construct that includes individuals’ subjective assessments of their physical, psychological, sociological, and functional status (Fayers, Hopwood, Harvey, Girling, Machin & Stephens, 1997). Research has shown that regular exercise significantly improves the quality of life, including dimensions such as physical functioning and emotional well-being (Bize et al, 2007; Mikkelsen, Stojanovska, Polenakovic, Bosevski & Apostopoulos 2017; Brãndao S., Oliveira F., Brãndao S., Silva, Sampaio, Urbano, Soares, Newton Santos Faia, Pasqualotto, Oliveira E., Oliveira R., Pires-Oliveira & Camelier, 2018; Kell & Rula, 2019; Shams, Nobari, Afonso, Abbasi, Mainer-Pardos, Pérez-Gómez, Bayati, Bahrami & Carneiro, 2021). When it comes to the dimensions of psychophysical well-being tested using the SF-36 questionnaire for the assessment of the health-related quality of life, the effects of exercise were checked in relation to self-assessment of physical functioning, work limitations due to physical non-functioning, pain, general health, energy versus fatigue, social functioning, work performance limitations due to emotional problems, and emotional well-

being. Over a period of eight months, a randomised study conducted on a sample of fifty participants tested the effects of strength training and aerobic training on the health-related quality of life, and on body composition and function in older adults. After the study, the score of the *physical role*, and the *general and mental health* HRQoL domains improved compared to the control group. In addition, resistance training effectively reduces body fat and improves older adults' functionality and physical functioning (Wanderley, Oliveira, Marques, Moreira, Oliveira, & Carvalho, 2015). A study conducted between 2008 and 2017 (Hart & Buck, 2019), which analysed these effects in a meta-analysis of the application of RT training, supports the promotion of RT in improving HRQOL in older adults in all domains (physical health, pain, emotional role functions, social functions, physical role functions). The study results showed that, after 12 weeks of resistance training in older men, two dimensions increased significantly during the intervention period: physical role and general health (Haraldstad, Rohde, Stea, Lohne-Seiler, Hetlelid, Paulsen, & Berntsen, 2017). The results of this study indicate the effect of a regular application of RT (resistance training) on the components of quality of life, especially on Physical Functioning, Role Physical, General Health, Vitality, and Mental Health. Even after one year of detraining in older adults who practiced RT earlier, these components decline slower (Inaba, Obuchi, Arai, Satake, & Takahira, 2008). Based on the recent studies mentioned above, which included using RT in older adults, it can be concluded that this type of resistance training with elastic bands significantly affects the components of physical functioning and mental health, which our study confirmed. The shortcomings of the conducted study indicate that a possibly larger sample of subjects is needed, along with a more extended period of RT application, the introduction of some additional experimental programme, such as aerobics, and further measurements related to body fat alterations, if one is to accurately elicit the effects of resistance training and confirm, once again, its effects on the components of health-related quality of life. Therefore, it is recommended that further studies improve the protocol and have a more extended intervention period.

CONCLUSION

After analysing the effects of strength training with resistance on the quality of life of older adults, it can be concluded that the effects of training significantly influenced the improvement of results in favour of the experimental group compared to the control group, which did not exercise. The paper demonstrates that improved physical functioning not only led to enhanced mental well-being but was also supported by the respondents' own experiences. Resistance training with load improved six of the eight life quality dimensions – physical functioning, pain, general

health, energy versus fatigue, social functioning, and emotional well-being, while no statistically significant differences were observed in two dimensions – physical limitations and emotional limitations. In other words, the frequency of physical activity significantly determines the quality of life of older adults. To conclude, this type of resistance training is highly beneficial for older adults, taking into account all the parameters of quality of life, and is highly recommended for all people in this age group.

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ЕФЕКТИ ТРЕНИНГА СНАГЕ СА ОПТЕРЕЋЕЊЕМ НА УНАПРЕЂЕЊЕ КВАЛИТЕТА ЖИВОТА КОД ИНСТИТУЦИОНАЛИЗОВАНИХ ОСОБА ТРЕЋЕГ ЖИВОТНОГ ДОБА

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Резиме

Двадесети век је окарактерисан као век пораста светског становништва, а 21. век је окарактерисан као век старења. Према пројекцијама Уједињених нација, број особа преко 60 година старости биће и више него удвостручен до 2050. године, са садашњих 840 милиона на преко 2 милијарде људи. Управо тај процес старења становништва представљаће један од највећих изазова са којим се савремено друштво сусреће, што последично у жижку светске заједнице ставља и питања у вези са квалитетом живота и функционалношћу ове растуће популације. Још је у доба античке Грчке Хипократ, отац савремене медицине, често истицао у својој лекарској пракси да сваки телесни сегмент који је физички активан остаје здрав, развијен и спорије стари. Гледајући хронолошки, од најранијих периода до данас, постоји велики број препорука и темељних научних доказа да редовна физичка активност доприноси целокупној популацији на очувању и побољшању здравља и квалитета живота. Стога, главна сврха овог истраживања било је управо укључивање особа трећег животног доба у тренинг снаге са оптерећењем у циљу побољшавања квалитета живота. Узорак испитаника обухватао је 22 особе старије од 65 година из Геронтолошког центра у Новом Саду (Војводина, Србија). Испитаници су били подељени у две групе: експерименталну и контролну. Експериментална група била је подвргнута тренингу снаге са еластичним тракама у трајању од 12 недеља, док је контролна група имала уобичајени начин живота, без програмиране физичке активности. Сви испитаници су били здрави и добровољно су учествовали у истраживању. У истраживању је коришћен стандардизовани упитник SF-36, који представља теоријски утемељену и научно проверену операционализацију две генералне компоненте које описују концепт здравља и квалитета живота – физичко здравље (физичко функционисање, ограничења обављања послова услед физичког нефункционисања, бол, генерално здравље) и ментално здравље (енергија наспрам замора, социјално функционисање, ограничење обављања послова услед емоционалних проблема и емоционално благостање). Анализирајући утицај тренинга снаге на квалитет живота, у овом истраживању је утврђено да је примена тренинга снаге са оптерећењем произвела значајне позитивне ефекте на шест од осам димензија квалитета живота, и то на физичко функционисање, бол, генерално здравље, енергију наспрам замора, социјално функционисање и емоционално благостање, док у свега две димензије квалитета живота – ограничења при обављању послова услед физичког нефункционисања и ограничење при обављању послова услед емоционалних проблема – нисмо добили статистички значајну разлику, што и доказују резултати ове наше студије. На крају, може се свеукупно констатовати да је тренинг снаге са оптерећењем на популацији институционализованих особа трећег животног доба, изузетно ефикасан и доводи до значајног пораста и побољшања у димензијама које детерминишу квалитет живота.