THE EFFECTS OF PHYSICAL EXERCISE ON PAIN, MOTOR ABILITIES AND QUALITY OF LIFE IN AN ELDERLY WOMAN WITH CHRONIC PAIN: A CASE REPORT

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ABSTRACT

Introduction: Physical activity has the potential to improve the physical and mental health of older adults, reducing the risk of joint pain and disability. Previous research suggests that regular muscle-strengthening exercise can enhance quality of life, however, chronic pain remains a challenge that negatively affects daily activities and social participation. Due to the importance of maintaining physical fitness in older age, tailored physical activity programs are recommended.

Objective: Assess the impact of six physical activity treatments on pain, motor abilities, and quality of life in an elderly woman with chronic hip and knee joint pain.

Case Report: The participant, a 74-year-old elderly woman, reported chronic hip and knee pain. Physical assessment included the Senior Fitness Test, Barthel Index, NRS pain scale, vital signs, and body composition analysis. After four weeks of therapy encompassing strength, stretching, and endurance exercises, no significant improvement in mobility was observed, but vital signs remained stable. The intensity of joint pain did not decrease.

Conclusion: The results indicate that physical activity can have selective effects on various aspects of health in older adults, but combination with other therapies is necessary for more significant outcomes. Further research with larger samples and longer treatment durations is needed to better understand the effects of physical activity.

Keywords: Senior Fitness Test, physiotherapy, physical exercise, quality of life

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INTRODUCTION

Current physical activity guidelines recommend muscle-strengthening activities for health promotion among all adults, including older adults (1, 2). Scientific evidence increasingly suggests that exercise can enhance the developmental, physical, mental, and social dimensions of well-being in older adults (3). Research suggests that older adults who regularly engage in muscle-strengthening exercises have a better quality of life, particularly in their general health perception. However, muscle-strengthening activities might be associated with knee pain. Although most previous studies on the impact of muscle-strengthening activities were conducted under supervision, the majority of older adults exercise without supervision, which may increase the risk of injury (4). Persistent, recurrent chronic pain affects 39-70% of older adults worldwide (5-8) and negatively impacts their daily lives, not only by causing discomfort but also by limiting their activities, contributing to loneliness and social isolation (9). Hip, knee, and ankle pain are major causes of pain and disability locally and represent the second most significant global factor contributing to long-term disability (10). Knee pain is the second most commonly reported painful region in the human body, second only to the back, with an overall prevalence of 46.2% (11). Although the prevalence, impact, and future burden of back, knee, and hip pain are well-documented, data on foot pain were limited until relatively recently. It is now known that foot pain is highly prevalent among older adults in the general population and is more common in women (12-15). A study in North Yorkshire analyzed lower limb problems in 16,000 individuals aged 55 and over. The research findings highlight the importance of self-assessment of pain and functional activities in daily life, particularly concerning the foot and ankle. The most common combinations of foot pain with other joints were: foot and knee; foot, knee, and hand; foot, knee, and hip; and foot and hand (16). Recurrent ankle injuries, mainly sprains, are one of the most commonly treated injuries. For example, in the UK alone, 5,000 such injuries are treated every day, mainly by general practitioners (17). For sedentary individuals, such injuries can be painful but usually do not cause significant impairment. Health-related well-being, often referred to as "quality of life," is important for patients with joint pain as it can affect their routine daily activities (18). Although it is widely recognized that pain and physical impairments associated with musculoskeletal conditions negatively affect function, mental health, and quality of life (19). The assessment of physical fitness is important both in research and in practice. One of the standard methods for adults aged 60 and over is the Senior Fitness Test (SFT), introduced by Rikli & Jones in 1999 (20). Not only is it used extensively in healthy individuals, but it has also proven feasible in populations with reduced mobility resulting from various neurological conditions (21). Pain in older adults can negatively impact quality of life in many ways. It can severely hinder daily functioning, is associated with depression, and older people consider it one of the greatest health burdens. This holds true for older adults living in the community as well as for those living in healthcare facilities (22).

The aim of this study was to assess the impact of six physical activity treatments on pain, motor abilities, and quality of life in an elderly woman with chronic hip and knee joint pain.

METHODS

Subject and Procedures

The participant in this study was a 74-year-old female with chronic hip and knee joint pain. The following instruments and assessments were used for data collection: the one-dimensional Numerical Rating Scale (NRS) (23), the Senior Fitness Test (20), assessment of vital signs (24), body composition assessment using a Tanita device based on bioelectrical impedance analysis (BIA) (25), and the Modified Barthel Index questionnaire (26). Measurement of morphological characteristics included body height and body weight. Descriptive statistics methods were used for the analysis of the collected data. Initial and final values are presented for each measured variable (e.g., leg strength, arm strength, endurance test, flexibility, body composition, quality of life, pain intensity, vital signs). Absolute changes (difference between final and initial values) and relative changes (expressed as percentages) were calculated to quantify the effect of the therapeutic intervention. The results are presented in tabular and graphical form for clarity and easier observation of individual changes in the participant. The NRS scale is the most commonly used one-dimensional scale. On a scale from 0 to 10, the patient numerically rates the intensity of pain. A rating of zero (0) indicates no pain, 1 to 3 indicates mild pain, 4 to 6 moderate pain, while scores from 7 to 10 indicate very severe pain. The advantage of this scale lies in its simplicity, frequency of use, and validation across numerous pain settings. Disadvantages include its inapplicability to young children and older adults with hearing, visual, or cognitive impairments (6). The Senior Fitness Test is a protocol developed by Rikli and Jones, designed to assess the functional fitness level of individuals over 60 years of age. Bioelectrical impedance analysis (BIA) is a rapid, non-invasive, and relatively inexpensive method for evaluating body composition in field and clinical settings. Pioneering work in the early 1960s laid the foundation for modern BIA. The BIA method assesses body composition by emitting a low and safe electrical current through the human body. The current passes through muscles with low resistance, while higher resistance is encountered when passing through adipose tissue. Advanced technology and traditional BIA are combined in the TANITA DC-430MA scale. Modern body fat monitors provide accuracy comparable to reference standards in measuring body fat percentage. Vital signs, including blood pressure and heart rate, were measured using a BEURER BM 44 digital upper arm blood pressure monitor. This device provides precise blood pressure values in mmHg, including systolic and diastolic pressure, and heart rate in beats per minute (bpm). Capillary pulse oximetry (SpO2 - Saturation of peripheral Oxygen) is a routine non-invasive spectrophotometric method allowing continuous measurement of peripheral oxygen saturation. The measured value is denoted as SpO2. The device is most often placed on the fingertip (27). For the purposes of this research, measurements were taken using the BEURER PO 80 device. The Modified

Barthel Index questionnaire provides an assessment of the participant's ability to perform activities of daily living and evaluates their quality of life. For assessing quality of life, the Modified Barthel Index of activities of daily living was used, comprising a total of 30 variables. For assessing motor abilities, motor tests comprising a total of 8 variables were used. For assessing pain intensity, the NRS pain scale was used, comprising a total of 3 variables. For assessing vital signs, 3 variables were used, and for assessing body composition, the Tanita device, based on bioelectrical impedance analysis (BIA), was used, providing a total of 14 variables. A total of 59 variables were used in the study.

Case Report

This case study presents the results of a female patient experiencing extremely severe pain in her right hip and knee joint. The pain first appeared 10 years ago and primarily occurred during walking. Recently, she has experienced severe pain along with a lack of strength in her legs. The participant is 74 years old, with a body height of 158 cm and a body weight of 76.90 kg. The participant has been retired for twelve years. The physiotherapy assessment consisted of taking a medical history, assessing hip joint pain using the Numerical Rating Scale (NRS) for pain intensity, and administering the Senior Fitness Test. The Senior Fitness Test included assessments of leg strength, arm strength, shoulder girdle mobility, posterior thigh flexibility, endurance, and agility, adapted according to the patient's hip joint pain. Initial testing was performed before the start of the physiotherapy treatment, and final testing was conducted after the treatment.

Intervention

The applied physiotherapy treatment consisted of a physical exercise program, comprising six physical exercise sessions over four weeks. On the NRS scale at initial testing, the pain intensity in the right hip was rated 10, and pain in the right knee was rated 7, which represents extremely high values. Ankle pain was rated 1. Initial Senior Fitness Test results were: leg strength 19 repetitions, arm strength 14 repetitions, endurance test 70 repetitions, right shoulder flexibility -9 cm, left shoulder flexibility -14 cm, right hip flexibility -13 cm, left hip flexibility -14 cm, and agility test 6.68 seconds. Data from the initial Barthel Index assessment indicate that the participant demonstrated relatively good independence in daily activities. The overall score is solid, although the results suggest an average energy level and acceptance of body image, while negative emotional feelings occur more frequently. Initial vital signs results before physical exercise show stable vital signs for the participant, with values of pulse 70 beats per minute, SpO2 96%, and blood pressure (SYS/DIA) 149/83 mmHg. Initial body composition values were: Body Weight - 76.90 kg, Fat % - 41.60%, Fat Mass - 32.00 kg, FFM (Fat-Free Mass) - 44.90 kg, Muscle Mass - 42.60 kg, TBW (Total Body Water) - 30.80 kg, TBW % - 40.10%, Bone Mass - 2.30 kg, BMR (Basal Metabolic Rate) - 1365.0 kcal, Visceral Fat Rating - 12.0 [units specified as kg in original], BMI (Body Mass Index) - 30.80 kg/m², and Ideal Body Weight - 54.90 kg. Over 4 weeks, an exercise program based on the

SFT was implemented, which included: stretching exercises, chair stand exercises, arm curl exercises, the 2-minute step test, and agility exercises.

Objectives

The primary aim of the therapy was to reduce pain intensity, while the secondary aims were to improve the participant's motor abilities and enhance quality of life.

RESULTS

After four weeks and the completion of 6 physical exercise sessions, final testing was conducted. On the NRS scale, the participant rated the pain intensity in the right hip as 10 and in the right knee as 7, representing extremely high values. The pain values after the treatment remained the same as at the initial testing. Final Senior Fitness Test results were: leg strength 21 repetitions, arm strength 14 repetitions, endurance test 77 repetitions, right shoulder flexibility -8 cm, left shoulder flexibility -13 cm, right posterior thigh flexibility -12 cm, and agility test 6.79 seconds. Comparing the initial and final testing results, several significant improvements were noted in specific areas. Leg strength increased from 19 to 21 repetitions, while arm strength remained the same at 14 repetitions. Also, the endurance test showed improvement, increasing from 70 to 77 repetitions. The flexibility variable shows an improvement in posterior thigh range of motion by 1 cm, while the agility test score also improved by 0.11 seconds. Scores for the tested variables (extent to which pain interferes with duties, energy for daily life, acceptance of physical appearance, frequency of negative feelings like low mood, despair, anxiety, depression) remained low in both initial and final assessments using the Barthel Quality of Life questionnaire. Pain was still present but moderately interfered with performing daily activities, as did a lack of energy for daily life. Also noted were a low level of acceptance of physical appearance and the frequent occurrence of negative emotional states such as low mood, despair, anxiety, and depression (Table 1 and 2).

Table 1. *Results of initial and final quality of life testing.*

Age	Bladder control	Personal hygiene	Toileting	Feeding	Transfer (e.g.,bed to chair)	Mobility	Dressing	Stair climbing	Bathing	Total score	Are you currently ill
74	2	1	2	2	3	3	2	2	1	18	NO
74	2	1	2	2	3	3	2	2	1	18	NO

Table 2. *Results of initial and final quality of life testing*

How would you rate your quality of life?	How satisfied are you with your health?	To what extent does pain prevent you from doing what you need to do?	How much do you enjoy life?	To what extent do you feel your life to be meaningful?	How well are you able to concentrate?	How physically safe do you feel in your daily life?	Do you have enough energy for everyday life?	Are you able to accept your bodily appearance?	How available to you is the information you need in your day-to-day life?	Do you have opportunities for leisure activities?	How well are you able to get around?	How satisfied are you with your sleep?	How satisfied are you with your ability to perform your daily living activities?	How satisfied are you with your capacity for work?	How satisfied are you with yourself?	How often do you have negative feelings such as blue mood, despair, anxiety, depression?
4	4	3	4	5	5	4	3	3	4	5	4	4	5	5	5	2
4	4	3	4	5	5	4	3	3	4	5	4	4	5	5	5	2

Final testing results showed that the participant demonstrated improvement in leg strength, increasing from an initial score of 19 to a final score of 21 repetitions, indicating enhanced leg strength. In arm strength, the participant maintained the same score of 14 repetitions between initial and final testing, which is within the normal range for her age group. The endurance test showed improvement, increasing from an initial 70 to 77 repetitions, indicating improved general endurance. Right shoulder girdle flexibility improved from -9 cm to -8 cm, while left shoulder flexibility improved from -14 cm to -13 cm. Right hip flexibility improved from -13 cm to -12 cm, and left hip flexibility improved from -15 cm to -14 cm. In the agility test, the time worsened from 6.68 seconds to 6.79 seconds (Table 3).

Table 3. *Comparison of initial and final motor test results*

	SNNO (Leg Strength)	SNRU (Arm Strength)	TEIZD (Endurance Test)	PRAM D (Right Shoulder Flexibility)	PRAM L (Left Shoulder Flexibility)	PKUK D (Right Hip Flexibility)	PKUK L (Left Hip Flexibility)	TESPR (Agility Test)
Initial testing	19	14	70	-9	-14	-13	-15	6,68
Final testing	21	14	77	-8	-13	-12	-14	6,79

Age variable and standards

The normal range of results for women is defined as the middle 50% of the population. Those with scores above this range will be considered above average for their age, and those below the range as below average (Table 4).

Table 4. *The normal range of results for women*

Age	60-64	65-69	70-74	75-79	80-84	85-89	90-94
SNNO (Leg Strength)	12 to 17	11 to 16	10 to 15	10 to 15	9 to 14	11 to 13	4 to 11
SNRU (Arm Strength)	13 to19	12 to 18	12 to 17	11 to 17	10 to 16	10 to 15	8 to 13
TEIZD (Endurance Test)	75 to 107	73 to 107	68 to 101	68 to 100	60 to 91	55 to 85	44 to 72
PRAM (Shoulder Flexibility) cm	-7.62 to +3.81	-8.89 to +3.81	-8.89 to +3.81	-10.16 to +2.54	-13.97 to + 0.0	-17.78 to -2.54	-20.32 to -2.54
PKUK (Hip Flexibility) cm	-1.27 to +12.7	-1.27 to +12.7	-1.27 to +11.43	-2.54 to +10.16	-3.81 to + 8.89	-6.35 to +6.35	-11.43 to +2.54
TESPR (Agility Test) sec	6.0 to 4.4	6.4 to 4.8	7.1 to 4.9	7.4 to 5.2	8.7 to 5.7	9.6 to 6.2	11.5 to 7.3

The pain scale results show that pain levels remained unchanged between initial and final testing (Table 5). Initially, hip joint pain was rated 10, knee joint pain was 7, and ankle pain was 1. These values remained the same at the final measurement.

Table 5. *Initial and final NRS pain scale values*

	Hip joint pain (1-10)	Knee joint pain (1-10)	Ankle joint pain (1-10)
Initial testing	10	7	1
Final testing	10	7	1

It is evident that the vital signs (SpO2, systolic/diastolic blood pressure, and pulse) remained largely stable between the initial and final testing. Initial SpO2 was 96%, final was 96%; initial blood pressure (SYS/DIA) was 149/83 mmHg, final was 150/83 mmHg; initial pulse was 70 bpm, final was 70 bpm (Table 6).

Table 6. *Initial and final vital signs values*

	SPO2 %	SIS/DIS	PULSE
Initial testing	96	149/83	70
Final testing	96	150/83	70

Body composition values showed improvement from initial to final testing in the following variables: Body weight decreased from 76.90 kg initially to 76.60 kg finally, and Fat Mass decreased from 32.00 kg initially to 31.80 kg finally. Other measured body composition values remained unchanged (Table 7).

Table 7. *Initial and final body composition values*

	Height (cm)	Age	Body Weight (kg)	FAT %	FAT MASS (kg).	FFM (Fat-Free Mass) (kg)	Muscle mass (kg).	TBW (Total Body Water) (kg)	TBW %	Bone mass (kg)	BMR (Basal Metabolic Rate) (kcal)	Visceral fat rating (kg)	**BMI (Body Mass Index)** (kg/m²)	Ideal body weight
Initial testing	158,00	74	76,90	41,60	32,00	44,90	42,60	30,80	40,10	2,30	1365,0	12,0	30,80	54,90
Final testing	158,00	74	76,60	41,60	31,80	44,90	42,60	30,80	40,10	2,30	1360,0	12,0	30,80	54,90

DISCUSSION

This research was conducted on a single participant and utilized a total of 53 variables, including the Modified Barthel Index of quality of life, motor tests, pain scale, vital signs, and body composition parameters. The study provides insight into the complex interaction between physical activity, quality of life, motor abilities, and health. Analyzing the Barthel Quality of Life test, preserved independence in basic activities of daily living (ADLs) is observed. The participant maintained a high level of independence in performing basic ADLs such as hygiene, feeding, transfers, mobility, dressing, stair climbing, and bathing. These results remained stable between initial and final testing. She rated her satisfaction with quality of life as moderate, which may mean she feels there are aspects of life she would like to improve, but generally does not feel completely dissatisfied. Furthermore, she rated her health as good and stated that pain moderately interfered with performing daily activities.

Considering she rated her hip pain as 10 on the NRS scale, within the quality of life assessment, she rated the pain as present, but not intense enough to completely prevent her from carrying out her duties. Social support and activities include the participant's assertion that necessary information is available to her in daily life and that she has opportunities for recreation. It also indicates a moderate energy level. The participant has enough energy for most activities but may feel tired after more demanding tasks or during the day. Although the participant generally functions in daily life, there are aspects that could be improved to enhance overall quality of life. It is recommended to pay attention to mental health, pain management, and energy enhancement through appropriate activities and therapies. The participant maintained a stable level of independence in performing basic daily activities, indicating preserved functionality during the observation period. Although the expected improvement in physical mobility did not occur, maintaining a stable level of independence in basic ADLs, along with moderate satisfaction with quality of life, suggests that the physical exercise program helped her preserve existing functionality and prevent further deterioration. This is important because research by Vuori indicates that physical inactivity involves a lack of strong muscle contractions that stimulate muscle rebuilding, slows down metabolism hindering various metabolic regulations, and involves an insufficient amount of skilled movements to maintain motor control, etc. (28). A low degree of acceptance of physical appearance and frequent negative emotional states such as low mood, despair, anxiety, and depression were present. Results with scores of 2 and 3 indicate certain challenges in quality of life, particularly regarding emotional health and physical pain. Through one-on-one interviews with 13 women aged 60 to 69, Liechty found that women expressed dissatisfaction with their bodies and desired changes in their appearance, while simultaneously reporting overall satisfaction (29). Research also concludes that some women report their subjective ('felt') age is much younger than their chronological (actual) age, causing a sense of internal conflict regarding body/appearance expectations (30-32). Such results emphasize the need for additional psychological or emotional support to improve the participant's emotional well-being. Motor tests also show certain changes after the physical activity treatment. Comparing initial and final testing results, several significant improvements were noted in specific areas. Leg strength increased from 19 to 21 repetitions, while arm strength remained the same at 14 repetitions. Also, the endurance test showed improvement, increasing from 70 to 77 repetitions. The increase in leg strength after treatment suggests improved muscle function of the lower extremities, and the slight improvement in the endurance test are indicators of positive results that could contribute to better functional capacity and quality of life. The participant managed to maintain muscle mass while reducing body weight and body fat mass. Preserving muscle mass is crucial for maintaining maximal isometric strength, while reducing adipose tissue can improve specific muscle force by decreasing fat infiltration. Research by Frontera and Metter concludes that the decrease in maximal isometric

strength is associated with aging and largely parallels the loss of muscle mass (33, 34). Lower specific force (force per unit cross-sectional area) of limb muscles in older adults is partly explained by greater infiltration of adipose and connective tissue, which can be mitigated by physical activity (35). Other motor abilities, such as shoulder girdle and posterior thigh flexibility, showed minor changes, which may indicate limitations of the physical activity program or individual characteristics of the participant. Overall, the final testing results indicate minor increases in strength, endurance, and flexibility, while agility performance slightly declined. Although the magnitude is small, considering the age and number of treatments, these improvements may indicate a positive impact of kinesiotherapy or other therapeutic interventions on motor abilities. A case report by Krupalija, conducted on the same participant, with the same physical exercise program, intensity, and duration, but incorporating dry needling treatment during the exercise period, showed significantly greater effectiveness of dry needling treatment in improving motor abilities compared to this study's physical exercise treatment alone (36). These differences in results may be attributed to the assumption that a muscle first needs to be healthy to be subjected to physical activity. Specifically, a muscle affected by myofascial trigger points, when subjected to physical activity, may become even weaker. Therefore, dry needling treatment, which eliminates myofascial trigger points, can offer a significant advantage in improving motor abilities in patients. The pain scale showed no changes between initial and final testing, suggesting that physical activity did not have a significant impact on reducing pain in the hip and knee joints. These results may indicate the need for a different approach to pain management in this population, perhaps combining physical activity with other therapeutic methods.

The participant's vital signs remained stable throughout the observation period, indicating preserved physiological stability and good health status. There were no significant changes in these vital signs during the testing period; this confirms the safety of the implemented physical activity treatment and the absence of immediate negative effects on vital functions. Considering the participant's age and the duration of the treatment, it is possible that a greater number of sessions would be required to achieve more significant progress. Ultimately, although motor tests showed certain positive changes after the physical activity treatment, other indicators such as the Barthel Quality of Life test, pain scale, and body composition parameters did not show significant changes. These results suggest that physical activity can have varying effects on different aspects of health and functionality in older adults. Further research should investigate the specific mechanisms underlying these differences and identify the most effective strategies for improving quality of life in the older population. Including additional parameters such as psychological well-being or social support could provide deeper insight into the complex interactions between physical activity and health outcomes in older adults. This study highlights the complexity of the impact of physical activity on various aspects of health in older adults. Physical activity

could play a key role in mitigating the effects of aging on muscle mass and strength. These conclusions align with research showing that physical activity can help preserve muscle mass and strength in older adults by reducing the infiltration of adipose and connective tissue. The secondary objective, which included improving the participant's motor abilities and quality of life, was achieved to a lesser extent. The primary objective of the treatment, to reduce joint pain, was not achieved. Most likely, it was not achieved because the small number of treatment sessions did not lead to more significant changes.

CONCLUSION

The research showed that the motor tests exhibited minor improvements after six physical activity treatment sessions, while no significant changes occurred in quality of life, vital signs, and body composition. This is most likely because physical activity can have selective effects on different aspects of health in older adults. Further research is needed with a larger sample size and a greater number of treatment sessions to better understand the mechanisms of action of physical activity and its impact on quality of life.

REFERENCES

1. Canadian Society for Exercise Physiology. Canadian 24-Hour Movement Guidelines: Glosary of terms. 2017 [cited 2025. April 7]. Available from: https://csepguidelines.ca/wp-content/uploads/2020/11/24HourGuidelinesGlossary_2017-1.pdf.

2. United States Department of Health and Human Services. Physical Activity Guidelines for Americans. 2008 [cited 2025. April 07]. Available from: https://odphp.health.gov/sites/default/files/2019-09/paguide.pdf.

3. Fox KR, Stathi A, McKenna J, Davis MG. Physical activity and mental well-being in older people participating in the Better Ageing Project. Eur J Appl Physiol. 2007;100(5):591-602.

4. Harada K, Shibata A, Oka K, Nakamura Y. Association of muscle-strengthening activity with knee and low back pain, falls, and health-related quality of life among Japanese older adults: a cross-sectional survey. J Aging Phys Act. 2015;23(1):1-8.

5. Bauer H, Emeny RT, Baumert J, Ladwig KH. Resilience moderates the association between chronic pain and depressive symptoms in the elderly. Eur J Pain. 2016;20(8):1253-65.

6. Jung C, Park J, Kim N, Park H. Status of chronic pain prevalence in the Korean adults. Public Health Weekly Report. 2015;8(31):728-34.

7. Larsson C, Hansson EE, Sundquist K, Jakobsson U. Chronic pain in older adults: prevalence, incidence, and risk factors. Scand J Rheumatol. 2017;46(4):317-25.

8. Treede RD, Rief W, Barke A, Aziz Q, Bennett MI, Benoliel R, et al. A classification of chronic pain for ICD-11. Pain. 2015;156(6):1003-7.

9. Chang SJ, Kim HJ, Juon HS, Park H, Choi SW, Lee KE, et al. A comparison of the influencing factors of chronic pain and quality of life between older Koreans and Korean-Americans with chronic pain: a correlational study. Qual Life Res. 2022;31(4):1179-89.

10. Vos T, Flaxman AD, Naghavi M, Lozano R, Michaud C, Ezzati M, et al.

Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012;380(9859):2163-96.

11. Lee SH, Son C, Yeo S, Ha IH. Cross-sectional analysis of self-reported sedentary behaviors and chronic knee pain among South Korean adults over 50 years of age in KNHANES 2013-2015. BMC Public Health. 2019;19(1):1375.

12. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet. 2016;388(10053):1545-602.

13. Finney A, Dziedzic KS, Lewis M, Healey E. Multisite peripheral joint pain: a cross-sectional study of prevalence and impact on general health, quality of life, pain intensity and consultation behaviour. BMC Musculoskelet Disord. 2017;18(1):535.

14. Mølgaard C, Lundbye-Christensen S, Simonsen O. High prevalence of foot problems in the Danish population: a survey of causes and associations. Foot (Edinb). 2010;20(1):7-11.

15. Wranker LS, Rennemark M, Berglund J. Pain among older adults from a gender perspective: findings from the Swedish National Study on Aging and Care (SNAC-Blekinge). Scand J Public Health. 2016;44(3):258-63.

16. Keenan AM, Drake C, Conaghan PG, Tennant A. The prevalence and impact of self-reported foot and ankle pain in the over 55 age group: a secondary data analysis from a large community sample. J Foot Ankle Res. 2019;12:53.

17. Kannus P, Renström P. Treatment for acute tears of the lateral ligaments of the ankle. Operation, cast, or early controlled mobilization. J Bone Joint Surg Am. 1991;73(2):305-12.

18. Crombie DL, Fleming DM. The third national study of morbidity statistics from general practice. J R Coll Gen Pract. 1986;36(283):51-2.

19. Woolf AD, Pfleger B. Burden of major musculoskeletal conditions. Bull World Health Organ. 2003;81(9):646-56.

20. Rikli RE, Jones CJ. The Development and Validation of a Functional Fitness Test for Community-Residing Older Adults. Journal of Aging and Physical Activity. 1999.;7:129-61.

21. Santana-Sosa E, Barriopedro MI, López-Mojares LM, Pérez M, Lucia A. Exercise training is beneficial for Alzheimer's patients. Int J Sports Med. 2008;29(10):845-50.

22. van Blijswijk SC, Chan OY, van Houwelingen AH, Gussekloo J, den Elzen WP, Blom JW. Self-Reported Hindering Health Complaints of Community-Dwelling Older Persons: A Cross-Sectional Study. PLoS One. 2015;10(11):e0142416.

23. Thong ISK, Jensen MP, Miró J, Tan G. The validity of pain intensity measures: what do the NRS, VAS, VRS, and FPS-R measure? Scand J Pain. 2018;18(1):99-107.

24. Talley NJ, O'Connor S. Clinical Examination: A Systematic Guide to Physical Diagnosis. 7th ed. London: Churchill Livingstone; 2013.

25. Jebb SA, Cole TJ, Doman D, Murgatroyd PR, Prentice AM. Evaluation of the novel Tanita body-fat analyser to measure body composition by comparison with a four-compartment model. Br J Nutr. 2000;83(2):115-22.

26. Mahoney FI, Barthel DW. Functional Evaluation: The Barthel Index. Md State Med J. 1965;14:61-5.
27. Vargić A. Monitoring mikrocirkulacije i oksigenacije u intenzivnoj medicini [Diplomski rad]. Zagreb: Sveučilište u Zagrebu, Medicinski fakultet; 2018.
28. Vuori I. Tjelesna aktivnost kao učinkovito sredstvo protiv nepovoljnog zdravstvenog djelovanja tjelesne neaktivnosti. Glasnik Hrvatskog saveza sportfiske rekreacije Sport za sve. 2005:3-12.
29. Liechty T. "Yes, I worry about my weight... but for the most part I'm content with my body": older women's body dissatisfaction alongside contentment. J Women Aging. 2012;24(1):70-88.
30. Hurd LC. “We're not old!”: Older women's negotiation of aging and oldness. Journal of aging studies. 1999;13(4):419-39.
31. Öberg P, Tornstam L. Youthfulness and fitness—Identity ideals for all ages? Journal of Aging and Identity. 2001;6:15-29.
32. Paulson S, Willig C. Older women and everyday talk about the ageing body. Journal of health psychology. 2008;13(1):106-20.
33. Frontera WR, Hughes VA, Fielding RA, Fiatarone MA, Evans WJ, Roubenoff R. Aging of skeletal muscle: a 12-yr longitudinal study. Journal of applied physiology. 2000;88(4):1321-6.
34. Metter EJ, Lynch N, Conwit R, Lindle R, Tobin J, Hurley B. Muscle quality and age: cross-sectional and longitudinal comparisons. Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences. 1999;54(5):B207-B18.
35. Goodpaster BH, Chomentowski P, Ward BK, Rossi A, Glynn NW, Delmonico MJ, et al. Effects of physical activity on strength and skeletal muscle fat infiltration in older adults: a randomized controlled trial. Journal of applied physiology. 2008;105(5):1498-503.
36. Krupalija E. Effects of Dry Puncture in Treatment of Chronic Hip Pain and Improvement of Motor Skills: Case Report. Zdravstveni glasnik [Internet]. 2022. [cited 2025. April 7]; 8(2):[82-8 pp.]. Available from: https://hrcak.srce.hr/ojs/index.php/zdravstveniglasnik/article/view/25272/13424.

UČINCI TJELESNOG VJEŽBANJA NA BOL, MOTORIČKE SPOSOBNOSTI I KVALITETU ŽIVOTA KOD STARIJE ŽENE S KRONIČNOM BOLI: PRIKAZ SLUČAJA

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SAŽETAK

Uvod**:** Tjelesna aktivnost ima potencijal poboljšati tjelesno i mentalno zdravlje starijih osoba, smanjujući rizik od bolova u zglobovima i invaliditeta. Prethodna istraživanja sugeriraju da redovito vježbanje jačanja mišića može poboljšati kvalitetu života, no kronična bol ostaje izazov koji negativno utječe na svakodnevne aktivnosti i socijalnu participaciju. Zbog važnosti održavanja tjelesne kondicije u starijoj dobi, preporučuju se prilagođeni programi tjelesne aktivnosti.

Cilj**:** Procijeniti utjecaj šest tretmana tjelesne aktivnosti na bol, motoričke sposobnosti i kvalitetu života starije žene s kroničnom boli u zglobu kuka i koljena.

Prikaz slučaja**:** Sudionica, starija žena od 74 godine, prijavila je kroničnu bol u kuku i koljenu. Tjelesna procjena uključivala je Senior Fitness Test, Barthelov indeks, NRS skalu boli, vitalne znakove i analizu sastava tijela. Nakon četiri tjedna terapije koja je obuhvaćala vježbe snage, istezanja i izdržljivosti, nije zabilježeno značajno poboljšanje pokretljivosti, ali su vitalni znakovi ostali stabilni. Intenzitet boli u zglobovima se nije smanjio.

Zaključak: Rezultati pokazuju da tjelesna aktivnost može imati selektivne učinke na različite aspekte zdravlja kod starijih osoba, ali za značajnije rezultate potrebna je kombinacija s drugim terapijama. Daljnja istraživanja s većim uzorcima i dužim trajanjem tretmana su potrebna kako bi se bolje razumjeli učinci tjelesne aktivnosti.

Ključne riječi: Senior fitness test, fizioterapija, tjelesno vježbanje, kvaliteta života

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