Journal of Studies and Researches of Sport Education
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analysis of causal conditions of elderly sports development in Iraq

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Article information

Article history:
Received 16/7/2025
Accepted 20/8/2025
Available online 15, NOV ,2025

Keywords:
Elderly sports development, Causal conditions, Active aging Iraq, Sports participation barriers, Older adults physical activity

Abstract

This research aims to identify the causal conditions influencing the development of sports for the elderly in Iraq ,The study is qualitative in nature and aims to be applied and developmental. The participants in the research included 19 experts and professionals in the field of sports for the elderly in Iraq, who were selected through purposive sampling using a snowball method for interviews, The qualitative results were categorized into three main categories (selective codes), 12 axial codes, and 37 open codes within the framework of causal conditions, The findings underscore the need for comprehensive strategies that address these health problems, motivational barriers, and policy deficiencies to promote and enhance sports participation among the elderly.

DOI: https://doi.org/ 10.55998/jsrse.v35i4.1188

Introduction:

Aging is a natural process that brings significant changes in many aspects of life, including physical and psychological dimensions. As people age, older individuals ,typically experience a decline in physical performance, which can lead to reduced mobility and an increased? risk of various chronic diseases such as diabetes, hypertension, and osteoporosis (Ibrahim & Lianingsih, 2024). The World Health Organization (WHO) estimates that the number of elderly? people worldwide will increase (Suprobo et al., 2024) The global population is aging, and it is predicted that by 2050, one in five people will be over 60 years old (Jenkin, 2020) In most developed societies, demographic −changes have occurred due to declining birth rates and improved healthcare, resulting in −increasing aging (Davison & Cowan, 2020)

In numerous studies, older adults report benefits from regular exercise, including pain reduction and improved mobility (Ibrahim & Lianingsih, 2024) Therefore, there is an urgent need? for more sports facilities for the elderly (M. Jung, 2023) meaning that one way to improve the quality of life for older adults is through exercise. Regular physical activity can help maintain or improve the physical and mental health of older adults, enhance sleep superiority, and reduce symptoms of stress, worry, and depression (Ibrahim & Lianingsih, 2024) The development of sports for the elderly requires tailored programs for older adults, participation in government policies, financial support, establishment of educational offices, promotion of sports rights, and systematic review of legislation" to enhance health, sports, and physical? activity for the elderly (Y.−H. Jung, 2023) A new cultural model of sports −for the care of the elderly has been proposed (Zhao, 2019)

Since active aging is a global objective for addressing the challenges faced by older grown−ups and improving their quality of life, understanding the indicators of active aging for the development of policies and programs focused on aging in an aging people is considered an important neutral. Among the most recognized indicators in the field of active aging are family or neighbor support, community participation, enhanced healthcare, and social security to' enhance well−being, which can be realized through innovative policies and public services (Bhaktikul et al., 2019) Population aging affects the development of the sports business and the technologies arising from it, and these innovations in industry and technology are a result of the aging population. Given the growing phenomenon of populace aging, how innovation and technology play a role in the sports industry is key to transforming an innovative country. In fact, technology and innovation in sports can explain 59.8% of the impact of population aging on sports improvement (Wei et al., 2023)

Physical inactivity among adults aged 60 and older is a global health? challenge with significant financial and human costs. Nearly 50% of older adults worldwide are physically inactive. To address this challenge, policymakers at both governmental and organizational levels have developed, approved, and applied policies to increase physical activity levels,? some of which specifically goal older individuals (Milner & Milner, 2016) Older adults often face various barriers to exercise, including physical limitations, fear of injury, and a lack of appropriate sports facilities for the elderly. Therefore, examining the challenges faced by older adults when exercising and how to overcome these barriers is important (Ibrahim & Lianingsih, 2024). Peer heaviness and family responsibilities can prevent older women from engaging in physical activities, as seen in studies focused on African American adults (Gothe & Kendall, 2016) Physical movement is essential for maintaining the purposeful independence of older adults, especially those with functional impairments. Since these impairments may create barriers to activity, examining activity patterns in relation to specific types of impairments will be useful in determining the extent and type of physical activity that older women engage in (Jerome et al., 2006)

Despite policy efforts, the overall impact on reducing physical inactivity among older individuals has been "minimal" (Milner & Milner, 2016) Present laws do not sufficiently protect the rights of older adults to participate in physical activity, highlighting a gap in legal support for this demographic. This raises the need for new legislation that expansively addresses the issue of physical activity for the elderly, including considerations for removing architectural barriers (DE PUBLICACIÌN, 2009) The lack of crucial services and infrastructure may hinder opportunities for older adults to occupy in sports and physical activities, ultimately impacting their social development and well-being. Since its establishment, Iraq has experienced significant political turmoil and violence, negatively affecting various aspects of life, including economic, social, and political conditions, leading to challenges in human rights, particularly the right to sustainable social development (Abdullah & Salman, 2023)

In a study by (Kilgour et al., 2024) a methodical review of 37 articles involving 26,961 adults aged 70 to 101 years, with an average age of 78 and 62% of participants being female, was conducted?. The most public barriers to physical activity among adults over 70 years old included physical health problems, environmental factors, fear of falling, lack of interest, and other barriers. The main motivators included social aspects, including internal/psychological factors, health-related factors, and environmental factors.

In another study by (Mekha & Teeyasuksaet, 2021) titled "A Regular Review of Barriers to Elderly Sports," the blocks faced by this age group were examined. This research congregated data from? academic documents in various research databases, including Scopus, Google Scholar, and PubMed, using specific keywords related to corporal activity and barriers to exercise, employing a qualitative research approach. Systematic review methods were used to analyze the retrieved literature, which included screening 129 documents to identify 10 publications consistently addressing barriers to exercise in the elderly. This study identified six main areas of barriers to exercise among older adults, including physical limitations, medical issues, lack of motivation to exercise, economic problems, cognitive challenges, and other related factors. These barriers, along with cognitive issues and lack of incentives, hinder their ability to engage in regular exercise. The study highlights that understanding these barriers is critical for developing effective problem-solving models to promote physical activity in this demographic and highlights the importance of addressing health-related challenges.

A study by (Harahousou & Kabitsis, 2002) indicated that policies for the development of sports for the elderly in Europe focus on promoting an active lifestyle through diverse programs by various organizations. Examples include Finland's educational networks, Scotland's legal services, and Italy's "Active Seniors" initiative, which emphasize? health, social support, and community engagement.

Research by (Dondzila et al., 2014) aimed to determine whether. awareness and use of fitness resources and physical activity varied depending on the distance from Community-Based Fitness Resources (CBFR). Participants completed questionnaires regarding health history, CBFR, and physical activity, collecting data on awareness of CBFR, its use, obstructions , and predictors of moderate to vigorous physical activity (MVPA). Results: Across spatial levels, there was no difference in the rate of positive awareness of CBFR or its use. Participation in MVPA varied by spatial levels ($P < 0.001$), with a radius of >3.2 to 8.0 kilometers having the highest average energy expenditure. In all locations, age and income level ($P < 0.05$) were significant predictors for low and high MVPA levels, while current health status and lack of interest were barriers to using CBFR ($P < 0.05$). Conclusion: Closer proximity to CBFR did not affect awareness or use rates and had an inverse relationship with physical activity.

Iraq's turbulent partisan history and ongoing instability have led to significant challenges in social development, including sports infrastructure (Abdullah & Salman, 2023) The country faces critical

development issues such as widespread poverty, economic stagnation, inadequate basic services, environmental degradation, ongoing armed violence, and political instability, all of which hinder individuals and communities from loving? their rights and contributing to sustainable social development (Abdullah & Salman, 2023) Therefore, there is a need to seek ways to navigate aging in the best possible manner. The importance of sports and bodily activity for the elderly to avoid and treat certain diseases, highlights the research gap in the field of elderly sports in Iraq. Consequently, this research aims to develop a model for promoting sports for the elderly in Iraq, with the central research question being: What are the causal conditions affecting the development of sports for the elderly in Iraq?

Research Methodology

This research employs a qualitative and exploratory approach aimed at identifying and developing a model for the advancement of sports for elderly in Iraq. The research method is built on grounded theory, following the systematic approach of Strauss and Corbin. Data for the study were collected through semi-arranged interviews with experts in the field of aging sports in Iraq, including faculty members, athletes, veteran sports coach, psychologists, social workers, sociologists, specialists, and experts in sports management, as well as bosses of organizations related to elderly affairs across Iraq. Sampling was conducted using purposive and convenience methods until theoretical saturation was achieved

Data analysis was performed using an inductive coding system in three phases: open, axial, and selective coding. In this study, the factors influencing causal conditions were identified and presented within a logical paradigm. During the research, data were coded according to Figure 1—axes (axial codes)—from open codes, selective codes derived from axes, and theories derived from categories.

Data → Open Codes → Axes → Categories → Theory

Figure 1. The process of transforming data into theory in grounded theory

Table 1. Demographic Characteristics of Interviewees in Interviews

Index	Characteristics	Total
Gender	Male	**15**
	Female	**4**
Education Level	Bachelor's	**4**
	Master's	**7**
	Doctorate	**8**

Organizational Role	Faculty member	**2**
	Manager	**7**
	athelete, veteran sports coach	**4**
	Psychologist and sociologist	**3**
	Social worker	**3**
Total		**19**

According to Table 1, 15 of the interviewees are male and four are female. The educational levels of the interviewees include four at the bachelor's level, seven at the master's level, and eight at the doctoral level. The backgrounds are as follows: two faculty ?members, seven managers, four atheletes, veteran .sports coach, three psychologists and sociologists?, and three social workers-. Therefore, the total number of experts partaking in the research was 19, reaching imaginary saturation through semi-structured interviews. This means that from the seventeenth participant onward, the data became repetitive, and to ensure greater reliability, interviews continued until the nineteenth expert was interviewed; however, no new codes were added.

Sampling for selecting experts and research experts was conducted purposive and handiness methods. Interviews with experts in the research group were analyzed using an inductive approach with open, axial, and selective coding concerning the causal state constructs. Based on a review of logical and research documents and an examination of the opinions and views of specialists, the research was conducted qualitatively.

To evaluate research, (M. G. Ahmed et al., 2025) four criteria of credibility, dependability,? confirmability, and transferability were employed. To verify the reliability of interview findings, an inter-coder reliability method was utilized. In this process, a sports. management expert participated in the coding procedure, resulting in satisfactory inter-coder agreement percentage

Research Findings

The aggregation and summary of the interviews (the mixture of responses confirmed by the research group and interviews) are existing in Table 2 after achieving arrangement and theoretical saturation. Following the systematic guidelines provided by Corbin and Strauss, the main classifications were determined using an inductive approach (part-to-whole). Regarding the open, axial, and selective coding, it should be noted that initial efforts were made to separate the interview text into meaningful elements within lines or paragraphs to select open codes. Subsequently, these were implied into axes related to the development of Sports for the Elderly in Iraq. In the next phase, those axes and indicators were organized into larger selective

categories. After that, efforts were made to classify the categories into larger constructs of the Strauss and Corbin systematic model, meaning the classes were organized into six main constructs: causal conditions, central phenomenon, strategies, contextual conditions, intervening conditions (mediators), and outcomes. Finally, in the selective coding phase, relationships between categories were clarified, providing the exemplary model and theories. Due to the extensive nature of the open codes, only the most significant ones, along with axial and selective codes, are referenced in the tables below.

The factors of "health problems," "motivational barricades for the elderly," and "weak policy-making" play a causal role in the "model for the development of sports for the elderly in Iraq," as reported in Table 2.

Table 2. Coding of Interviews in the Causal Conditions Construct

Row	Construct	Category	Axial Code	Open Codes
1	Causal Conditions	health problems	Chronic diseases	Diabetes and concerns about the impact of exercise on blood sugar levels. High blood pressure and fear of exacerbating it with physical activity. Cardiovascular problems and the limitations arising from them. Respiratory diseases, such as asthma, that make movement difficult.
2			Mobility limitations	Joint pain and difficulty performing exercises. Balance issues, muscle weakness, and inability to engage in physical activities. Limitations resulting from previous surgeries (e.g., joint replacement). Decreased body flexibility with age.
3			Fear of injury	Fear of bone fractures due to osteoporosis. Concerns about muscle or ligament strains. Fear of worsening existing pain with exercise.
4			Low energy levels	Persistent feelings of fatigue and lack of motivation to move. Anemia and reduced energy levels. Sleep disorders that lead to daytime fatigue.
5		motivational barriers	Negative attitude towards exercise	The belief that exercise is useless for the elderly. A tendency to focus on the negative aspects of exercise for seniors due to past unsuccessful experiences.

		for the elderly		The perception that exercise is only suitable for young people.
6			Insufficient social support	Low willingness of families, friends, and peers to participate in sports activities. Inadequate group sports programs to create motivation.
7			Low willingness to engage in sports activities	Low inclination to be active and a preference for sedentary activities. Feelings of boredom and reluctance to start exercising. Preference for other activities, such as watching television or resting.
8			Feeling of aging	Feelings of physical and mental incapacity to engage in sports activities. A sense of aging and reluctance to change lifestyle. The belief that exercise cannot affect the aging process.
9		weak policy-making	Weak national programs	Weak long-term programs to increase elderly participation in sports. Insufficient attention to elderly sports in the country's higher-level documents. Weakness in setting clear and measurable goals for elderly sports.
10			Budget shortages	Inadequate budget to provide sports facilities specifically for the elderly. Lack of financial resources to train specialized coaches in the field of elderly care. Insufficient financial support for programs promoting elderly sports.
11			Limited coordination among organizations	Limited collaboration between the Ministry of Sports and the Ministry of Health for the development of sports for the elderly. Low coordination among government organizations and NGOs in implementing programs. Overlapping responsibilities and conflicts among related institutions.
12			poor implementation	Inadequate supervision of the implementation of elderly sports programs. Weak accountability of responsible entities for program execution. Weakness in the evaluation and continuous monitoring of implemented programs.

Conclusion:

The research findings indicate that the causal conditions include? the main categories of health problems (Including thoughts of chronic diseases, mobility limitations, fear of injury, and low energy levels); the main category of motivational barriers for the aging (including negative attitudes near exercise, insufficient social support, low willingness to engage in sports activities, and feelings of aging); and the main category of fragile policy-making- (including concepts of weak domestic programs, budget shortages, limited coordination among organizations, and poor implementation). Based on these results, physical access alone is insufficient to increase physical activity, and other factors such as attitudes and health status also play significant roles. Exercise is valuable for the physical and mental health of older adults, but health problems present barriers to their participation. Therefore, to achieve success, attention must be given to these three groups of challenges, and programs tailored to the needs of the elderly should be designed and implemented. The findings from (Dondzila et al., 2014) designate that physical access alone does not guarantee increased physical activity. Other factors such as attitudes, health status, and socio-economic factors also play important roles.

The health problems in this category encompass a set of conditions that act as the "root" of issues in the development of sports for the elderly. These conditions make it difficult for older adults to engage in or participate in sports activities. Health problems, as a fundamental factor, negatively impact the ability and willingness of the elderly to exercise. These issues directly. disturb physical ability and tortuously influence motivation and willingness to exercise through the creation of fear and decreased energy, impacting both participation and outcomes. This finding emphasizes the importance of addressing the health and medical needs of the elderly before any efforts to develop sports. It also highlights the need for exercise programs designed for individuals with specific health issues (such as rehabilitation programs).

Research shows that while workout is beneficial for improving physical and mental health in older adults, individuals with health disorders often face participation barriers. The research by (Ibrahim & Lianingsih, 2024) has shown that common questions include diabetes, hypertension, and osteoporosis, which can limit flexibility and increase the risk of injury. Research by (Suryadi et al., 2024) indicates that many older adults encounter barriers such as fear of injury and lack of access to appropriate facilities, hindering their ability to exercise. (Hilfiker, 2019) demonstrated that exercise is predominantly ?important for older adults with mental health issues, as it can

prevent or delay. the onset of disorders and aid in recovery. According to a systematic ?review conducted by (Mekha & Teeyasuksaet, 2021) health problems were identified- as one of the six main barriers to physical activity among the elderly.

Motivational barriers for the elderly refer to the psychological- and social factors ?that impact their motivation to participate in sports. These barriers negatively affect the motivation and willingness of older adults to engage in physical activities. Negative insolences, insufficient social support, and feelings of aging can all contribute to decreased motivation and a lower inclination towards sports activities. These barriers are multifaceted, Including personal, social, and environmental factors that prevent older individuals from engaging in physical activities. Accepting these barriers is crucial for evolving strategies to increase sports participation among the elderly, ultimately improving their overall well-being and quality of life. This finding emphasizes the importance of fostering motivation and encouraging the elderly to exercise through scholastic programs, awareness campaigns, family and community support, and creating supportive and friendly environments.(N. H. Ahmed et al., 2009)

In the research by (Goodarzi et al., 2021) motivations and values were identified? as influential factors in the cultural and social components of policies and strategies for developing physical activity among the elderly in selected leading countries. The study by (Kilgour et al., 2024) conducted systematically, identifies several motivational barriers affecting physical activity in older adults, such as lack of motivation/interest and fear of falling. These barriers can suggestively hinder the development of sports for the elderly by reducing participation rates. Addressing these barriers through support from healthcare professionals and increasing social interaction can encourage participation in sports. In the research by (Mekha & Teeyasuksaet, 2021) lack of motivation for exercise was identified as one of the six main barriers to sports among the elderly.

Weak policy-making refers to the absences and shortcomings in governmental and organizational policies and programs that hinder the development of sports for the elderly. As a causal factor, weak policy-making exacerbates health problems and motivational barriers, leading to serious challenges in developing sports for the elderly. The absence of nationwide programs, budget shortages, and lack of coordination impede the establishment of necessary infrastructure, provision of supportive services, and motivation for older adults. This finding emphasizes the importance of formulating and implementing national programs, distributing adequate budgets,

fostering coordination among relevant organizations (Goldys, 2022), and monitoring the implementation of these programs.

(Goodarzi et al., 2021) classified the policies and strategies for developing physical activity among the elderly in selected leading countries into five main themes: structural and fundamental components, hardware components, software components, cultural-social components, and operational and executive components. They recommended that stakeholders and managers in the health and sports sectors utilize the extracted themes to develop effective strategic and operational programs to successfully address the crisis of aging citizens. Study by (Goldys, 2022) has shown that the sports sector has been effective in promoting the health of the elderly, which has led to an increased emphasis on the role., of sports in European Union policies over the past decade. According to research by (Harahousou & Kabitsis, 2002) European leisure policies promote an active lifestyle for the health of the elderly, with various organizations offering different physical activity programs for older adults.

The government should provide economic support and appropriate policies for the development of sports for the elderly. Relevant officialdoms in sports, health, and welfare should implement operational programs to increase the participation of older adults in sports.

Programs for the prevention and administration of chronic diseases, such as awareness campaigns, screening programs, and support for health centers, are recommended. Additionally, rehabilitation and physiotherapy programs, such as establishing rehabilitation clinics and employing specialists, along with safe exercise programs tailored to health conditions—such as designing exercises, monitoring by professionals, and focusing on specific groups—can aid in the development of sports for the elderly.

Based on the findings regarding the motivational barriers faced by older adults, several suggestions have been made to increase sports activities in this age group. One effective measure in this regard is to raise awareness and change attitudes through workshops and seminars. Consuming media to disseminate motivational messages and showcase successful role models can also significantly encourage older adults to engage in sports. Highlighting the achievements and successes of elders who exercise regularly can serve as a strong motivator and create greater enthusiasm for physical activities.

Furthermore, enhancing social support by creating sports groups for the elderly and encouraging families to support them in sports activities is of particular importance. Public awareness of the

significance of exercise for older adults can help shift societal attitudes towards this issue and encourage seniors towards physical activities.

Creating engaging and diverse sports programs is another noteworthy? suggestion. These programs should include various types of physical activities such as walking,? swimming, yoga, and aerobics, designed according to the interests and abilities of older adults. The scheduling of these programs should align with the needs and preferences of seniors,? and sports environments should be designed ?to foster a sense of friendship and support among contestants.

In addition to these measures, the use of incentives can also be effective. Providing awards for participation in sports programs, discounts on participation fees for low-income individuals, and recognizing active and successful seniors in sports are among the approaches that can enhance motivation for engaging in physical activities.

On the other hand, in terms of pathetic policy-making, the formulation and application of national programs for the development of sports for the elderly are essential. These programs should have clear objectives, approaches, and evaluation .indicators, and guarantee the involvement of relevant organizations to enable effective implementation. Acceptable budget allocation for sports for the elderly, transparency in budget management, and support for private projects should also be considered. Additionally, creating coordination among organizations through the establishment ?of inter-organizational working groups and easing the exchange of information. and experiences between them can help improve the status of sports for the elderly.

Acknowledgments

We express our gratitude to the research sample, comprised of sports management experts.

Conflict of Interest

The authors declare that there is no conflict of interest.

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References

Abdullah, B., & Salman, A. (2023). The role of Iraqi legislation in the right to sustaining the social development. *Journal of Juridical and Political Science*, *12*(2).

Ahmed, M. G., Farzan, F., & Dousti, M. (2025). The Model of Sports Talent Management in the Field of Track and Fields in the Schools of Iraq. *Journal of Sports Education Studies and Research*, *35*(1), 127–146. https://doi.org/10.55998/jsrse.v35i1.838

Ahmed, N. H., Omar, A. F., & Hammad, F. (2009). *The Effect of Complex Exercises Using the Strategy of Pressure Game to Develop the Energy Expended for the Heart and the Speed of the Skilled Performance of the Football Players*.

Bhaktikul, K., Aroonsrimorakot, S., Laiphrakpam, M., Metadilogkul, O., & Konjengbam, S. (2019). Indicators of active ageing for sustainable development: A comparative insights of ageing elderlies from Chiang Mai (highland) and Nakhon Pathom (lowland) Provinces, Thailand. *Interdisciplinary Research Review*, *14*(5), 39–46.

Davison, R., & Cowan, D. (2020). Sports participation and ageing–influence and impact. *Observatory for Sport in Scotland*.

DE PUBLICACIÌN, N. (2009). *REVISTA INTERNACIONAL DE DERECHO Y GESTIÓN DEL DEPORTE*.

Dondzila, C. J., Swartz, A. M., Keenan, K. G., Harley, A. E., Azen, R., & Strath, S. J. (2014). Geospatial Relationships between Awareness and Utilization of Community Exercise Resources and Physical Activity Levels in Older Adults. *Journal of Aging Research*, *2014*, 1–7. https://doi.org/10.1155/2014/302690

Goldys, A. M. (2022). Sport sector as a part of public policy for elderly people in selected EU countries. *Epidemiology, Biostatistics, and Public Health*, *14*(2). https://doi.org/10.2427/12503

Goodarzi, A., Elahi, A. R., & Akbari Yazdi, H. (2021). Qualitative analysis of elderly physical activities development strategies and policies of selected and leading countries. *Ranian Journal of Health Education and Health Promotion*, *8*(4), 359–377. https://doi.org/10.29252/ijhehp.8.4.359

Gothe, N. P., & Kendall, B. J. (2016). Barriers, Motivations, and Preferences for Physical Activity Among Female African American Older Adults. *Gerontology and Geriatric Medicine*, *2*. https://doi.org/10.1177/2333721416677399

Harahousou, Y., & Kabitsis, C. (2002). European Models of Leisure Policies and Physical Activity Programs for Elderly People. *World Leisure Journal*, *44*(1), 3–10. https://doi.org/10.1080/04419057.2002.9674255

Hilfiker, R. (2019). Exercise for Older Adults with Mental Health Problems. In *Primary Care Mental Health in Older People* (pp. 127–143). Springer International Publishing. https://doi.org/10.1007/978-3-030-10814-4_11

Ibrahim, R. A., & Lianingsih, N. (2024). Challenges and Benefits of Sports for the Elderly: A Case Study in Panimbang District, Banten, from the Perspective of the Elderly and Health Professionals. *International Journal of Health, Medicine, and Sports*, *2*(4), 119–124. https://doi.org/10.46336/ijhms.v2i4.151

Jenkin, C. (2020). Developing sport for older women. In *Developing Sport for Women and Girls* (pp. 45–56). Routledge.

Jerome, G. J., Glass, T. A., Mielke, M., Xue, Q.-L., Andersen, R. E., & Fried, L. P. (2006). Physical Activity Participation by Presence and Type of Functional Deficits in Older Women: The Women's Health and Aging Studies. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, *61*(11), 1171–1176. https://doi.org/10.1093/gerona/61.11.1171

Jung, M. (2023). Utilization and support plan of Realistic Sports Technology for Revitalizing Elderly Sports Activation. *Asia-Pacific Journal of Convergent Research Interchange*, *9*(11), 471–480. https://doi.org/10.47116/apjcri.2023.11.36

Jung, Y.-H. (2023). A Plan for Elderly Sports Promotion in the Era of Healthy Longevity. *Korean Journal of Sports Science*, *32*(1), 331–349. https://doi.org/10.35159/kjss.2023.02.32.1.331

Kilgour, A. H. M., Rutherford, M., Higson, J., Meredith, S. J., McNiff, J., Mitchell, S., Wijayendran, A., Lim, S. E. R., & Shenkin, S. D. (2024). Barriers and motivators to undertaking physical activity in adults over 70—a systematic review of the quantitative literature. *Age and Ageing*, *53*(4). https://doi.org/10.1093/ageing/afae080

Mekha, P., & Teeyasuksaet, N. (2021). *2021 joint international conference on digital arts, media and technology with ECTI northern section conference on electrical, electronics, computer and telecommunication engineering*.

Milner, C., & Milner, J. (2016). Impact of Policy on Physical Activity Participation and Where We Need to Go. *Annual Review of Gerontology and Geriatrics*, *36*(1), 1–32. https://doi.org/10.1891/0198-8794.36.1

Suprobo, N. R., Farah Mutiara Cita Diva, Diva Azzahra Putri Chori, Maharani Rohma Hidayanti, Hellen Arta Tri Andalini, Katmawanti, S., & Sulistyorini, A. (2024). Increasing Elderly Physical Activity Through the Elderly Sports Health Promotion Program "GANTARI" in Senggreng Village, Malang Regency, Indonesia. *Warta LPM*, 71–80. https://doi.org/10.23917/warta.v27i1.2947

Suryadi, D., Komaini, A., Suganda, M. A., Rubiyatno, R., Faridah, E., Fauzan, L. A., Fauziah, E., Putra, M. E., & Ayubi, N. (2024). Sports Health in Older Age: Prevalence and Risk Factors – Systematic Review. *Retos*, *53*, 390–399. https://doi.org/10.47197/retos.v53.102654

Wei, X., Wang, T., Chen, Y., Lyulyov, O., & Pimonenko, T. (2023). The Effects of Population Aging on Sports Industry Development: The Mediating Effect of Technological Innovation. *International Journal of Environmental Research and Public Health*, *20*(3), 2085. https://doi.org/10.3390/ijerph20032085

Zhao, F. (2019). Discussion on the development of community old-age sports under the combination of physical education and health. *The Frontiers of Society, Science and Technology*, *1*(1).