

INVOLVEMENT OF OLDER PEOPLE IN INDEPENDENT PHYSICAL ACTIVITY IN KAZAKHSTAN: REGIONAL DIFFERENCES AND OPPORTUNITIES FOR DIGITAL SUPPORT

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Abstract. The study aims to identify a regional cross-section of the participation of the older population in independent physical activity in Kazakhstan. The authors proposed directions for digital support of physical culture and recreation activities of the studied age group. The research methodology includes a secondary analysis of official statistical data, and a comparative analysis of regional cases. As a result, it was revealed that in 2026, that 47.7% of the population of Kazakhstan aged three years and older were involved in physical culture and sports, and 19.2% of the population exercised independently. Among persons engaging in independent physical activity, adults aged 58 years and older accounted for 16.6%. In three regions of Kazakhstan, adults aged 58 years and older accounted for more than 30% of persons engaging in independent physical activity, approximately 1.8–2.0 times the national share of 16.6%. Comparison of the data showed that a high level of physical activity of older people is observed in regions with different demographic structures. This determines the independent physical activity of the older population as a result of the interaction of demographic, infrastructural, social, organizational and pedagogical conditions.

Key words: older age, physical activity, independent physical activity, active longevity, sports pedagogy, mass sports, digital technologies, Kazakhstan.

Introduction. Regular physical activity has a positive effect on maintaining health and functional independence in old age. International recommendations provide for 150-300 minutes of moderate or 75-150 minutes of intense aerobic activity per week for adults, including the elderly people [6]. At the same time, for older age groups, multicomponent exercises aimed at maintaining strength, balance and functional capabilities are of particular importance. In the recommendations of the World Health Organization (WHO), older age is understood as the age of 65 years and older [6]. For this group, WHO recommends including multicomponent exercises with an emphasis on functional balance and strength training at least three days a week in weekly physical activity. In the present study, the age category of 58 years and older is used, since it is used in the official statistics of the Bureau of National Statistics of the Republic of Kazakhstan (BNS).

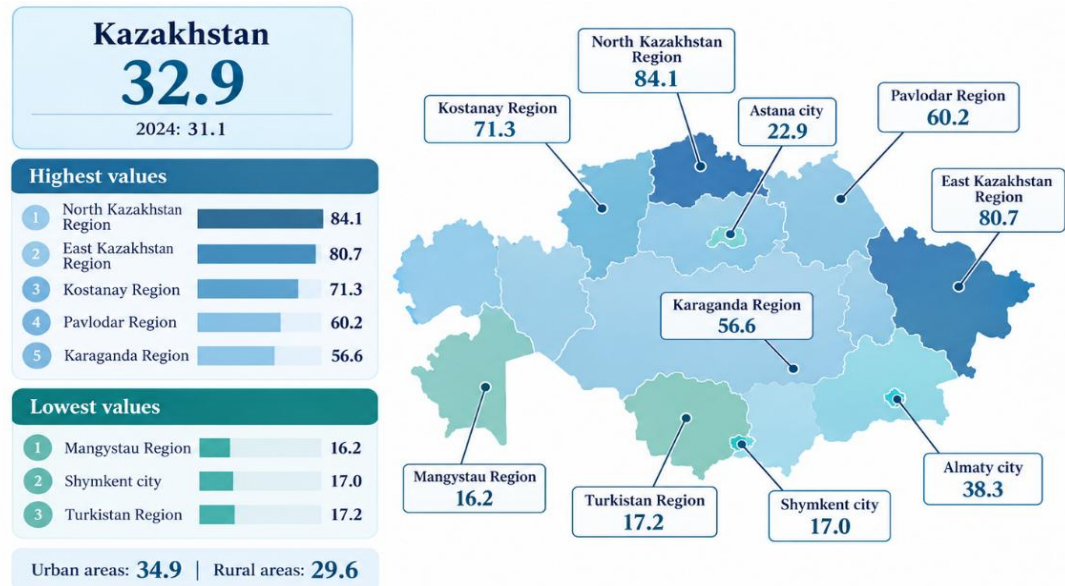
Physical activity in older age is necessary not only for the prevention of certain diseases. A systematic review by researchers Cunningham et al. showed an association of physical activity with a lower risk of all-cause mortality, including cardiovascular disease, functional limitations, repeated falls, cognitive decline and depression [7]. Physical activity is thus associated with a more favorable way of healthy aging.

The availability of sports infrastructure, as well as special organized programs, does not guarantee regular physical activity of the older population. International studies show that involvement in physical activity depends on the state of health, motivation, accessibility of facilities, social support, as well as the ability to choose the appropriate type of activity and independent exercise [5, 11, 13].

For Kazakhstan, this area of study is becoming increasingly relevant due to changes in the age structure of the population. In 2025, the population ageing index reached 32.9 people aged 65 years and older per 100 children under 15 years old. Previously, this figure was 31.1. This indicator

varies depending on the region: from 16.2 in the Mangystau region and 17.0 in Shymkent to 84.1 in the North Kazakhstan region and 80.7 in the East Kazakhstan region [3] (Figure 1).

Figure 1. Population Ageing Index by Region of the Republic of Kazakhstan, 2025. Number of persons aged 65 years and older per 100 children aged 0-14 years.



Source: BNS of the Republic of Kazakhstan

At the same time, there is an increase in the overall level of participation of the population in physical culture and sports. The results of surveys of 12,000 households in 2026 showed that 47.7% of the population of Kazakhstan is involved in physical activity and sports, which is 1.2% more than in 2025. At the same time, 19.2% of the population exercised independently in their free time.

In this study, the age group involved in independent activity is of particular interest. People aged 58 and older accounted for 16.6% of self-exercisers. After the age groups of 36-48 years and 17-28 years, this group ranked third in terms of number. At the same time, in some regions, the representation of 58 years plus exceeded 30%.

The purpose of this study is to identify the regional features of the representation of older people in independent physical activity in Kazakhstan, and on this basis to determine the directions for the development of sports and recreation programs and digital support.

Materials and methods. The study was based on secondary data analysis and was supplemented by a comparative analysis of regional differences.

The main data source is provided by the Bureau of National Statistics of the Republic of Kazakhstan. In August 2026, the Bureau published a sample survey of public opinion on public participation in physical culture and sports. Surveys were conducted by 12,000 households [2].

The analysis of the questionnaires included the following indicators (Table 1)

Table 1. Indicators of the BNS questionnaires

Indicator	Year	Source
Proportion of population involved in physical culture and sport	2026	BNS RK
Proportion of population engaging in independent physical activity	2026	BNS RK
Age structure of persons engaging in independent physical activity	2026	BNS RK
Share of persons aged 58+ among those engaging in independent physical activity, by selected region	2026	BNS RK
Population Ageing Index	2025	BNS RK
Provision of sports infrastructure	2026	Official data in the field of sports
Results of the National Adult Physical Activity Survey	2021-2022	Ibrayeva et al., 2025

It should be noted that the indicator for the 58 plus age group used in this study represents the proportion of persons aged 58 years and older within the total population engaging in independent physical activity. It does not indicate the proportion of all persons aged 58 years and older who engage in independent physical activity. The available BNS data do not provide the latter indicator.

The age categories used in the two indicators are not identical: independent physical activity data refer to persons aged 58 years and older, whereas the population ageing index is based on persons aged 65 years and older. Therefore, the ageing index is used only as a contextual demographic indicator, and no direct equivalence between the two age groups is assumed.

According to the Bureau, approximately 26,500 sports facilities were operating in Kazakhstan in 2026, while the population's access to sports infrastructure amounted to 59.6% of the established standard. [2].

A national study by Ibrayeva et al., which included 6,720 adults from all regions of Kazakhstan, was also used as a database. The authors used data from the WHO STEPS and the Global Physical Activity Questionnaire in their study, and concluded that about 19.7% of respondents did not meet the necessary recommendations for physical activity. Lower rates were characteristic of older age groups, women, and the urban population as a whole [9].

The study includes:

- descriptive analysis of national indicators
- comparison of the highest regional values of the 58 plus group with the national indicator
- comparison of the results obtained with the aging index
- interpretation of the identified differences from the standpoint of the socio-ecological approach
- formation of a conceptual model to support physical activity of the elderly population.

Statistical correlation and regression analysis was not carried out at this stage, since the BNS open publication contains only the regions with the maximum values for the 58 plus group. The full regional data set for this indicator is not publicly available, which excludes the possibility of using the analysis.

Results. In 2026, 47.7% of the population of Kazakhstan aged three years and older were engaged in physical education and sports. In their free time, 19.2% of the population practiced independently, 28.1% participated in classes in educational organizations and 0.4% were engaged in professional sports (Table 2).

Table 2. Main indicators of involvement of the population of Kazakhstan, 2026

Indicator	%
General involvement in physical culture and sports	47,7
Independent physical activity	19,2
Classes in educational organizations	28,1
Professional sports	0,4

Overall urban population engagement	49,3
Overall involvement of the rural population	45,0
Independent physical activity – urban population	22,2
Independent physical activity – rural population	13,7

Source: compiled by the authors based on data from BNS of the Republic of Kazakhstan [2].

The difference in terms of independent activity is especially noticeable: among the urban population, the corresponding figure reaches 22.2%, and in rural areas 13.7%. Thus, the urban environment potentially provides more opportunities for independent training. The age structure of independent students is as follows (Table 3):

Table 3. Age structure of persons engaging in independent physical activity

Age	Share, %
17–28 years old	18,6
29–35 years old	16,0
36–48 years old	28,4
49–57 years old	15,4
58 years and older	16,6

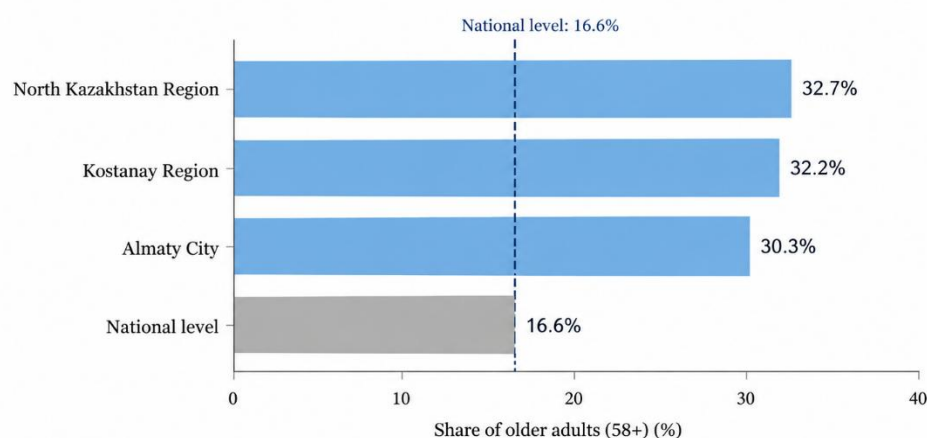
Source: BNS of the Republic of Kazakhstan [2].

The available data do not support the conclusion that 16.6% of Kazakhstan's population aged 58 and older engage in independent physical activity. This indicator reflects the age composition of the population of those who are independently engaged in physical activity. At the same time, the analysis shows that older adults are represented meaningfully among those engaging in independent physical activity, with their share exceeding that of the 29–35 and 49–57 age groups.

Thus, it can be concluded that the older population is not only an object of organized medical and health improvement programs, but also an independent subject of physical activity.

Studied regional differences, the highest rates of representation of the 58 plus group among self-employed were determined: more than 30% in North Kazakhstan, Kostanay regions and the city of Almaty. Compared to the general national level of 16.6%, this is correspondingly almost 2 times higher (Figure 2).

Figure 2. Share of adults aged 58+ among persons engaging in independent physical activity: selected regional values and the national level, Kazakhstan



Compared with the national level (16.6%), the indicators are approximately 1.97 times, 1.94 times, and 1.83 times higher, respectively.

The high values observed in the North Kazakhstan and Kostanay regions may partly reflect their demographic structure. Per 100 children under 15 years old, there are 84.1 people 65 plus in the North Kazakhstan region, and 71.3 in the Kostanay region. Although the ageing index refers to the 65+ population and is therefore not directly comparable with the 58+ physical activity category, these values indicate a comparatively older demographic structure in both regions. (Table 4).

Table 4. Comparison of the representation of adults aged 58+ in independent physical activity and regional demographic characteristics

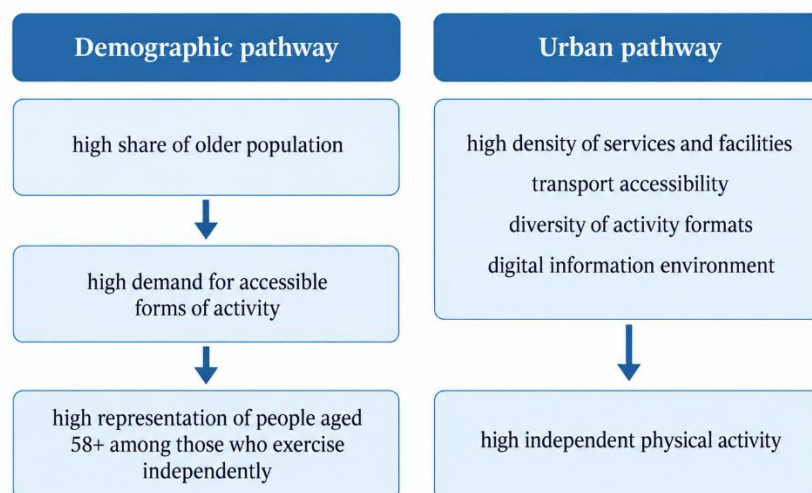
Territory	Share of persons aged 58+ among those engaging in independent physical activity, %	Aging Index	Deviation from the AC indicator, p.p.
North Kazakhstan region	32,7	84,1	+16,1
Kostanay region	32,2	71,3	+15,6
Almaty	30,3	38,3	+13,7
Kazakhstan	16,6	32,9	—

Source: Source: authors' calculations based on data from the Bureau of National Statistics of the Republic of Kazakhstan [2, 3]. Note: The indicators refer to different age thresholds. The independent physical activity indicator uses the 58+ category, whereas the population ageing index is calculated for persons aged 65+ per 100 children aged 0–14. The comparison is descriptive and contextual.

The comparatively high representation of adults aged 58+ among independently active persons in these regions is therefore consistent with their older demographic structure.

At the same time, the city of Almaty shows a different situation. With an aging index of 38.3, the share of the 58 plus group among independent students reaches 30.3%. Thus, demographic structure alone does not appear sufficient to account for the high representation of the 58+ group in Almaty. This pattern allows us to propose, for further examination, several possible regional contexts associated with independent physical activity among older adults. (Figure 3).

Figure 3. Exploratory conceptual interpretation of selected regional patterns of independent physical activity among older adults



Based on the available regional observations, two possible explanatory contexts can be proposed as an exploratory framework. These should not be interpreted as a validated regional typology or as evidence of causal relationships. A demographic context may be relevant in regions with a relatively high proportion of older residents.

An urban context may involve a different combination of factors, including the concentration of services and sports infrastructure, transport accessibility, diversity of activity formats and the

digital information environment. The proposed typology is interpretative and does not imply causal relationships.

Discussion. The results of the study show that independent physical activity of the older population of Kazakhstan cannot be considered solely as a function of age. International studies also show the dependence of the participation rate on many factors. Systematic review Jenkin et al. shows the influence of individual, social and organizational factors on the participation of older people in sports [10]. Spiteri et al. identify environmental conditions, resources, social influence, and support among the most stable factors [13].

The physical environment has a big impact. An article by researchers Barnett et al. showed a positive relationship between the physical activity of the elderly population and the accessibility of destinations, the pedestrian environment, safety, infrastructure and the characteristics of urban development [5].

In this regard, Almaty's high performance may potentially depend not on the demographic situation, but with a greater concentration of opportunities for independent activity. There are thousands of sports facilities in the city, official data for 2026 indicate 3,638 sports infrastructure facilities [1]. However, based on the available data, it cannot be definitively stated that more sports facilities are directly related to higher physical activity of people aged 58 and older.

The term «self-study» should not be understood as a complete lack of social or pedagogical support. A systematic review by Lindsay Smith et al. found that specific physical activity support from loved ones, especially the family, is positively associated with leisure physical activity in older adults [11]. Therefore, the promising task of sports pedagogy is not constant control over a person, but the formation of the ability to safely and regularly practice independently.

An analysis of recent studies shows the potential of digital solutions. A regional approach to the organization of physical activity of older people was previously considered by the authors as part of a review of models for their involvement in mass sports using digital technologies [12]. An analysis of regional practices allows us to consider digital solutions not as an independent alternative to traditional formats of physical education and health work, but as an additional tool to support participation in physical activity. In this context, the combination of accessible sports infrastructure and pedagogical support with digital tools for informing, communicating and supporting independent activities is of particular importance. This approach also implies the need to take into account regional differences when choosing specific mechanisms for involving older people [12].

The study by Alley et al. combined 22 systematic reviews and meta-analyses covering 185 primary studies and 28,198 participants [4]. According to the results of the analysis, digital interventions contributed to an increase in physical activity, however, the authors note the need for longer follow-up and research directly among 65 plus people.

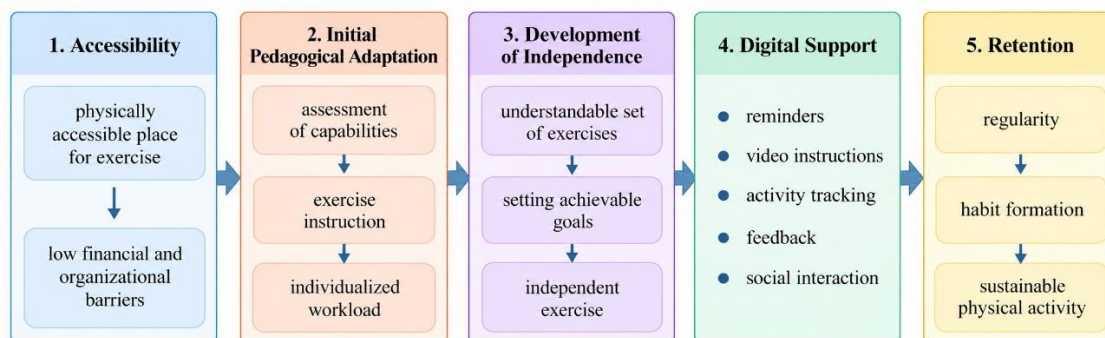
However, recent studies have also reported less conclusive findings. A systematic review by Goodwin et al. of nine randomized controlled trials found limited and heterogeneous evidence regarding the effectiveness of mHealth interventions in older adults. Therefore, the available evidence does not allow firm conclusions to be drawn regarding sustained behavioural change resulting from the use of apps or wearable devices alone [8].

Other studies have found positive associations between Internet use and athletic activity. Zhong et al. reported that Internet users were more likely to participate in sports, with this association also being evident among older age groups [14]. In a 2026 study among 976 older women, the association between internet use and physical activity was mediated by social support and intrinsic motivation. Taken together, these findings suggest that digital technologies may be most useful as complementary tools supporting motivation, information, feedback and social interaction rather than as substitutes for the physical and pedagogical environment.

Based on the findings, the development of regionally differentiated models may be more appropriate than the use of universal programmes. For regions with a high proportion of the elderly population, the priority may be the development of accessible programs in the place of residence,

training in safe independent activity, and training specialists in working with older age groups. (Figure 4).

Figure 4. Hybrid supported independent physical activity model (H-SIPA)



For large cities such as Almaty and Astana, a promising approach is to combine existing offline infrastructure with digital support, including online exercise programmes, activity tracking, personalized recommendations, and information on available groups and sports facilities. In both cases, the digital component should be used in support of, and not instead of, face-to-face pedagogical interaction.

The Bureau of National Statistics provides regional values of the 58 plus group only for the territories with the highest indicators. Therefore, it is not yet possible to conduct a full correlation or regression assessment of regional factors. Moreover, the compared demographic indicators belong to the 65 plus group, while the sports activity indicator reflects the 58 plus category. The ageing index is used exclusively as an indicator of the demographic context.

As such, the available data are observational and do not allow for a causal relationship between demographics, sports infrastructure, the digital environment and physical activity.

Conclusion. Analysis of official data shows a noticeable representation of the older population in independent physical activity in Kazakhstan. In 2026, people aged 58 and older accounted for 16.6% of those who are independently engaged in physical culture and sports. At the same time, in the North Kazakhstan and Kostanay regions and the city of Almaty, the figure exceeded 30%.

Comparison with demographic characteristics indicates the existence of different regional contexts. In the North Kazakhstan and Kostanay regions, the high representation of the older population among the self-employed is combined with a pronounced demographic aging. In Almaty, a comparable level is observed with a significantly lower aging index.

This suggests that the conditions for independent physical activity are formed under the influence of several interrelated factors: demographic structure, urban and sports infrastructure, social support, availability of pedagogical support and the digital environment.

For sports pedagogy, the most promising is the transition from a model in which an older person is considered exclusively as a participant in an organized lesson, to a model of supported independent physical activity. Within the framework of this approach, the pedagogical task is to teach safe motor activity, load adaptation, the formation of independent training skills and the subsequent support of the regularity of classes.

Digital technologies in this model perform an auxiliary function: they provide information, monitoring, feedback and social interaction, but do not replace the initial pedagogical support.

ВОВЛЕЧЕНИЕ ПОЖИЛЫХ ЛЮДЕЙ В САМОСТОЯТЕЛЬНУЮ ФИЗИЧЕСКУЮ АКТИВНОСТЬ В КАЗАХСТАНЕ: РЕГИОНАЛЬНЫЕ РАЗЛИЧИЯ И ВОЗМОЖНОСТИ ЦИФРОВОЙ ПОДДЕРЖКИ

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Аннотация. Цель исследования заключается в выявлении региональных особенностей участия пожилых людей в самостоятельной физической активности в Казахстане. Авторы предложили направления цифровой поддержки физкультурно-оздоровительной деятельности исследуемой возрастной группы. Методология исследования включает в себя вторичный анализ официальных статистических данных и сравнительный анализ региональных примеров. В результате было выявлено, что в 2026 году 47,7% населения Казахстана в возрасте от трех лет и старше занимались физической культурой и спортом, а 19,2% населения занимались самостоятельно. В возрастном разрезе 16,6% составляли самозанятые лица в возрасте 58 лет и старше. Значительная представленность этой группы наблюдается в 3 регионах Казахстана и составляет около трети населения, что в 1,8-2 раза превышает общероссийский показатель. Сравнение полученных данных показало, что высокий уровень физической активности пожилых людей наблюдается в регионах с разной демографической структурой. Это определяет самостоятельную физическую активность пожилого населения в результате взаимодействия демографических, инфраструктурных, социальных, организационных и педагогических условий.

Ключевые слова: пожилой возраст, физическая активность, самообучение, активное долголетие, спортивная педагогика, массовый спорт, цифровые технологии, Казахстан.

ҚАЗАҚСТАНДАҒЫ ЕГДЕ ЖАСАҒЫ АДАМДАРДЫ ӨЗІНДІК ДЕНЕ ШЫНЫҚТЫРУМЕН АЙНАЛЫСУҒА ТАРТУ: АЙМАҚТЫҚ АЙЫРМАШЫЛЫҚТАР ЖӘНЕ ЦИФРЛЫҚ ҚОЛДАУ МҮМКІНДІКТЕРІ

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Аңдатпа. Зерттеу егде жастағы халықтың Қазақстандағы тәуелсіз физикалық белсенділікке қатысуының аймақтық бөлігін анықтауға бағытталған. Авторлар зерттелетін жас тобындағы дене шынықтыру-сауықтыру іс-шараларын цифрлық қолдау бағыттарын ұсынды. Зерттеу әдістемесі ресми статистикалық деректерді қайталама талдауды және аймақтық жағдайларды салыстырмалы талдауды қамтиды. Нәтижесінде, 2026 жылы Үш жастан асқан Қазақстан халқының 47,7% - ы дене шынықтырумен және спортпен шұғылданғаны, ал халықтың 19,2% - ы өз бетінше спортпен шұғылданғаны анықталды. Жасы бойынша 16,6%-ы 58 жастан асқан өзін-өзі жұмыспен қамтыған адамдар болды. Бұл топтың үлкен өкілдігі Қазақстанның 3 өңірінде байқалады және халықтың шамамен үштен бірін құрайды, бұл республикалық көрсеткіштен 1,8-2 есе асады. Деректерді салыстыру әр түрлі демографиялық құрылымы бар аймақтарда егде жастағы адамдардың физикалық белсенділігінің жоғары деңгейі байқалатынын көрсетті. Бұл демографиялық, инфрақұрылымдық, әлеуметтік, ұйымдастырушылық және педагогикалық жағдайлардың өзара әрекеттесуі нәтижесінде егде жастағы халықтың дербес физикалық белсенділігін анықтайды.

Түйінді сөздер: жасы үлкен, дене белсенділігі, өзіндік оқу, белсенді ұзақ өмір сүру, спорт педагогикасы, бұқаралық спорт, цифрлық технологиялар, Қазақстан.

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