

# The healthcare function of sports based on the old age law and the psychological regulation in sports

Jian Liu<sup>1</sup>, Xuemin Deng<sup>2\*</sup>, Yinfa Wang<sup>3</sup>

## Abstract

Traditional healthcare exercises, such as Tai Chi and aerobic exercise, lower the danger associated with exercise and promote the growth of the cardiovascular system. This study aims to examine the difference in mental and physical health protection between individuals who adhere to outmoded medical care and those who are less physically active to provide a systematic basis for smearing and encouraging health care in the "immune system" of traditional Chinese medicine. A sample of 526 middle-aged and elderly individuals regularly engage in physical activity but rarely participate in the urban survey of physical activities. Numerous brain scans were performed based on the interpolation index, the complexity index, the BFS psychological test, and the SCL-90. The SPSS 16.0 program is administered for statistical data analysis. The measured data are within the moderate or moderate range, and the estimated level equals 0.05. The average of various groups was F test, P0.05, and the difference was statistically significant. Taijiquan/Taijijian may successfully control enthusiasm and rage, improving their mental health; Fitness Qigong Tendon Changing Classic exercise gratifies the body and mind; Fitness Qigong Baduanjin exercise can regulate tranquillity.

**Keywords:** Geriatric law; Sports health care; Psychological regulation; immunity; Taijiquan

## 1. Introduction

With the advancement of social civilization and the weakening of physical fitness, the publicity of culture and human sports ability is gradually declining; it leads to obesity and deformity of people's bodies, which leads to psychological and emotional stress; the immune function of the body is disrupted, which affects human health and development; and it harms human health and development (Xiao et al., 2021). In particular, middle-aged and elderly persons will cause chronic diseases due to their metabolic decline; therefore, sporting activities suited to their physique and needs should be designed. The investigation of traditional healthcare sports, such as shadowboxing and aerobic exercise, decreases the danger associated with exercise and contributes to improving cardiovascular health. Traditional healthcare sports are a cultural treasure because they represent the Chinese nation's tens of thousands of years of struggle against production, life, and disease (Dai & Menhas, 2020). It can prevent sickness, increase health and intelligence, foster morality, extend life, and fortify the nation.

Traditional healthcare sports rely on people's abilities, they may improve the whole body function of people through connected activities to rehabilitate the soul and body, and they can not only preserve health but also treat diseases,

combining medical and sports characteristics (Reardon et al., 2021). From a medical standpoint, promoting people-oriented medical concepts highly recommends the combination of health preservation and treatment, particularly for middle-aged and older individuals with chronic conditions. Traditional healthcare sports are widely promoted. Its objective is to utilize the subjective initiative of individuals to actively control their psychological and physiological activity during exercise to strengthen the body and prevent and treat disease. In addition, by adjusting the internal functions of the human body, we may exercise the essence and spirit of people, which is appropriate for the weak. In certain situations, health and longevity are options available to all individuals. By the end of this century, China will have 130 million senior citizens (Reed, Combs, & Segerstrom, 2020).

For middle-aged and elderly individuals to enjoy a long and healthy life, self-care is paramount (Pierce, Perrin, & McDonald, 2020). Observing the differences in courtesy, aptitude, psychology, psychological state, physical health, and immunity between middle-aged and elderly city dwellers and those who engaged in less physical activity provided a foundation for the scientific teaching of physical education to middle-aged and elderly individuals. In recent years, there has been a rise in the proportion of senior people participating in sports, but this is not the objective of sports

<sup>1</sup> College of Humanities and Development Studies (COHD), China Agricultural University, Beijing, China

<sup>2</sup> Vocational Education Centre, Special Police of China, Beijing, China

<sup>3</sup> College of International Education and Exchange, Tianjin Normal University, Tianjin, China

\*Corresponding Author's Email: [2020211969@email.cufe.edu.cn](mailto:2020211969@email.cufe.edu.cn)

health management. Consequently, the research on the regular sports of the elderly will assist the department of health management in formulating effective intervention measures and promoting the growth of the senior health cause in our province, which is of great importance.

This study aims to investigate the difference in mental and physical health protection between those who adhere to traditional health care and those who are less physically active to provide a systematic basis for smearing and encouraging wellness maintenance in the "immune system" of traditional Chinese medicine. In addition, this research is innovative because this topic is absent from the existing literature and is not addressed by previous studies. The implications of the research are grounded in philosophy and practice. This research adds to the current body of information and reveals new perspectives. The practical consequences are reliable for enhancing the public health management system. The report also includes some future directions.

## 2. Literature Review

Effective behavioral intervention and defining the precise point of intervention entry are the significant aspects influencing sports and the interplay between multiple factors that must be addressed (Gorczyński et al., 2021). According to research on health-related behaviors, individual behavior styles vary depending on social and cultural background, economic level, physical and mental health, knowledge, and available resources (Bauer et al., 2020). According to the study, physical activity is an enormously important aspect of health-related behavior, and its final form emerges from the interplay of several complex influencing elements. Sociological, ecological, and other theories are incorporated into foreign studies, including demography, social support, psychological condition, health status, health knowledge, chronic diseases, etc. Yet, there are still open questions and research gaps (Ntoumanis et al., 2021). In general, the theoretical portion of domestic research on the influence of factors associated with the physical behavior of average-aged individuals is based on foreign research theory. Most research undertaken by trained specialists in social-ecological theory employs small sample sizes to analyze and investigate sports engagement among the elderly (Lee & Lee, 2019). According to social ecology theory, the influence of population variables, personal health awareness, social support, environmental conditions, health status, and chronic diseases on the physical behavior of China's urban aged is unusual (Meng et al., 2020). The ultimate goal of human social development is to realize the free and comprehensive development of human beings, i.e., to fully meet the people's material and cultural needs and improve their living standards,

to protect human life, health, dignity, and worth, and to encourage the improvement of the quality of life for the elderly. The World Health Organization (WHO) defines the quality of life as the perspectives of individuals from different cultures and value systems on their goals, expectations, standards, and worries over their living conditions. Hence, quality of life involves not only the maintenance of life and health but also the promotion of life's interests, social stability, peace, and acknowledgment of its value and contribution to society (Abdoli et al., 2022). Among these, maintaining life and a healthy body, i.e., maintaining health, is a crucial foundation for recognizing the value of humans and the harmonious interaction between humans and society (Samifanni & Gumanit, 2021). Consequently, focusing on health and improving the quality of human life is fundamental for accomplishing holistic human development and fostering modern civilization's expansion.

The Old Age Law focuses mainly on the old, especially those who cannot care for themselves and cannot live with their children. Owing to changes in the family structure, two young people support four seniors, and children cannot support the old; as a result, additional social help is required for the elderly's lifelong care (Gao et al., 2020). The quality of life of the elderly should be improved, and social care should become increasingly specialized. Have daily maintenance, such as assisting the elderly with hair-cutting and bathing (Lawthom, 2020); Offer housekeeping services, including grocery shopping and maintaining hygiene; There are further nursing-related components. Under the chapter on "spiritual comfort" of the Old Age Law, it is stated that "family members shall not spiritually ignore or isolate the elderly" and "supporters who reside apart from the elderly shall routinely visit or greet them." Although the old age law is a component of social legislation, it is impossible to provide specifics. In the future, however, if children do not visit their old parents "often," the elderly will be entitled to file a legal claim. Formerly, the court would not take such cases, but in the future, it will file one (Öhman et al., 2022). A variety of means, such as judicial judgements, administrative supervision, and mediation by mediation groups, determine the outcomes of such situations.

## 3. Methodology

### 3.1 Investigation method

For data collection, 600 questionnaires were delivered to middle-aged and elderly persons in one city who participated in outdoor sports frequently and infrequently. After an on-site inquiry, 560 copies were gathered, including 526 legitimate questionnaires. Among the valid questionnaires, 279 "exercisers" met the following criteria: >4 times/week, >30

minutes/time, and exercise time >1 year (Song et al., 2021). According to the sports items, each sports group is split into "Taijiquan/Taijijian group, fitness Qigong Baduanjin group, fitness Qigong Wuqinxi group, fitness Qigong group, walking/diving group, walking/diving group, and other sports groups." Following the requirements of this topic, "52 people" from other sports clusters were deleted, "227 people" from the obsolete exercise group were included in the mental health and immunity test items, and 135 people were weak. It was proven on the condition that 156 participants participated in the immunological test, 114 of whom had exercise and 42 of whom had less.

### 3.2 Multidimensional psychometric methods

The test allowed the participants 120 seconds to memorize Arabic numerals (101X10 digits, 00 99). The individuals were tasked with determining one of 00 and one from stroke tested to regulate time with a brake generator and calculated for two minutes. The subjects were randomly selected (Liu et al., 2021). This evaluation typically evaluates the effectiveness of the subject.

This study assesses the performance indices of workers evaluated by image analysis. Due to the outside nature of the examinations, most participants engage in morning exercise, making it impossible to perform in broad spans. After 72 surveys, the "Raven test" utilized in this study was reduced to 12 questionnaires, and the average prediction difficulty was 0.5%.

The scale comprises eight subscales: activity, pleasure, thoughtfulness, peacefulness, anger, excitement, depression, and inactivity (Kim, Kim, & Jung, 2021). This has been used to evaluate the mental health of various working groups with a reasonable degree of reliability and validity. Therefore it may operate as a tool to detect diverse mental health concerns. The scale consists of 90 items in 10 areas, including physical symptoms, interpersonal relationships, emotional status, lifestyle, nutrition, and sleep; each item is graded from asymptomatic (grade 1) to severe (grade 5). (Wang et al., 2022b).

### 3.3 Immune function test indexes and methods

Before 9:00 a.m., 1 mL of the tested individual's peripheral venous blood was extracted, put into an EDTA-K2 anticoagulant tube, and maintained at room temperature for "lymphocyte subsets identification within 24 hours." Simultaneously, "4 mL of venous blood was extracted and injected into the vacuum blood collection channel to detect serum immunoglobulin." Immunoglobulin test: immunoturbidimetric technique is utilized, and BEHRING Corporation provides the kit. Each sample's hemorrhagic serum was separated, and its IgG, IgA, and IgM concentrations were measured using a specialized protein analyzer.

### 3.4 Measurement of relevant physical health indicators

It includes pulse percentage, cardiac output, weight, height, and the body's mass index (BMI), each of which was performed following the measurement of inflammatory processes (heart rate was measured every ten minutes after thirty minutes of quietness, three times in total, heart stress was measured by the center and older adults who did not take medication freely, and various time interval was equivalent to value method) (Chen et al., 2021).

### 3.5 Statistical methods

SPSS16.0 software has been used for statistical analysis. The measured data are shown in the medium or medium range  $\bar{x} \pm s$ , and the measured level is  $\alpha=0.05$ . The different groups' average was F test,  $P<0.05$ ; the difference was significant among the literature.

## 4. Results

### 4.1 Basic situation analysis

Middle-aged and older adults choose sports from high to low: walking/jogging, Taijiquan/Taijijian, fitness Qigong Baduanjin, fitness Qigong Yijinjing, fitness Qigong Wuqinxi. The findings are reported in Table 1. It shows that traditional health sports have a positive significance for maintaining the cardiovascular health status of exercisers. The overall physical fitness level of the few exercisers is worse than that of the exercise groups (Zhang et al., 2022).

Table 1

Basic Information of the Respondents

| Project                | Taijiquan/Taijijian | Fitness Qigong Baduanjin Group | Fitness Qigong Wuqinxi Group | Fitness Qigong Tendon Changing Classic Group | Walking/jogging group | Rarely exercise group | F value |
|------------------------|---------------------|--------------------------------|------------------------------|--|-----------------------|-----------------------|---------|
| Number of people       | 67(29.51)           | 33(14.53)                      | 19(8.37)                     | 27(11.89)                                    | 81(35.68)             | 135(25.66)            |         |
| Age                    | 63.84±6.71          | 60.84±6.64                     | 57.84±5.98                   | 59.84±6.02                                   | 67.84±7.94            | 56.84±5.96            |         |
| Years of Exercise      | 6.98±3.31           | 5.08±2.44                      | 5.69±2.65                    | 3.44±0.76                                    | 9.24±4.33             | 0                     |         |
| Heart rate (times/min) | 65.47±8.42          | 69.98±9.13                     | 68.86±8.93                   | 64.73±7.09                                   | 62.28±7.25            | 73.07±7.87            | 2.93    |
| SBP (mm Hg)            | 123.26±24.78        | 129.07±25.64                   | 122.91±24.79                 | 130.93±25.42                                 | 119.65±21.93          | 141.28±24.06          | 3.01    |
| DBP (mm Hg)            | 76.02±12.19         | 81.57±15.96                    | 82.74±14.82                  | 82.63±13.99                                  | 81.38±13.52           | 88.37±17.73           | 252     |
| BMI (kg/m)             | 22.35±3.79          | 24.02±3.53                     | 23.77±3.45                   | 22.54±3.09                                   | 19.08±3.15            | 25.65±3.84            | 2.47    |

### 4.2 Multidimensional psychological analysis

The workout groups of middle-aged and elderly individuals with distinct objects took the word delimitation test. The difference is statistically significant, and the average value of

Qigong Wuqinxi physical education in this test is the highest among them, demonstrating that Qigong Wuqinxi physical education has a favorable influence on the ability to think and intelligence of the elderly (Kim et al., 2014). The results listed in Table 2.

**Table 2**

*Results of stroke test for middle-aged and older adults in each group*

| Group  | Number of people | Crossword test | F value | P value |
|--|------------------|----------------|---------|---------|
| Taijiquan/Taijijian                          | 67               | 18.08±2.29     | 2.68    | <0.05   |
| Fitness Qigong Wuqinxi Group                 | 33               | 23.16±3.32     |         |         |
| Fitness Qigong Baduanjin Group               | 19               | 16.73±2.71     |         |         |
| Fitness Qigong Tendon Changing Classic Group | 27               | 19.23±2.88     |         |         |
| Walking/jogging group                        | 81               | 16.15±2.53     |         |         |
| Rarely exercise group                        | 135              | 15.36±3.67     |         |         |

There was a statistically significant difference in the overall average level of the crowd test between the "exercise group" and several exercise groups, and the variance was experimentally accepted (P<0.05). The average score of the Qigong Wuqinxi

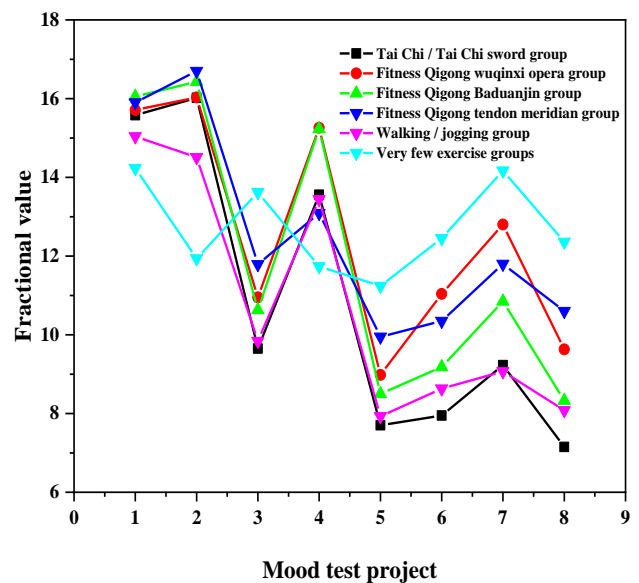
exercise cluster was the highest, indicating that the Qigong Wuqinxi exercise had a good influence on the cognitive development of middle-aged and elderly individuals (Wang et al., 2022a). The results listed in Table 3.

**Table 3**

*Raven Test Results of Middle-aged and Elderly People in Each Group*

| Group  | Number of people | Raven Test | F value | P value |
|--|------------------|------------|---------|---------|
| Taijiquan/Taijijian                          | 67               | 4.49±0.69  | 2.86    | <0.05   |
| Fitness Qigong Wuqinxi Group                 | 33               | 5.01±0.54  |         |         |
| Fitness Qigong Baduanjin Group               | 19               | 4.93±0.58  |         |         |
| Fitness Qigong Tendon Changing Classic Group | 27               | 3.25±0.32  |         |         |
| Walking/jogging group                        | 81               | 2.68±0.36  |         |         |
| Rarely exercise group                        | 135              | 3.89±0.59  |         |         |

There were statistically significant variations in the mean total score between the mental level of the exercise group (P <0.05). The lowest ratings for weaknesses, happiness, and anger were found in the Taijiquan group, and the lowest scores for depression suggested that Taijiquan and Taiji had considerable impacts on decreasing stress, regulating anger, and enhancing vitality. There were statistically significant variations in emotional satisfaction among exercise groups (P<0.05) between the Qigong Wuqinxi exercise group and the Qigong Jinjing exercise group, showing that Qigong Wuqinxi and Yijinjing have the most beneficial physical and mental benefits in the elderly. Walking/jogging is the most effective treatment for depression and has a substantial moderating effect on anger, agitation, and inactivity. Figure 1 depicts the stated results.



**Figure 1.** Comparison of scores of mood test items

The difference in total scores for somatization, depression, paranoia, fear, aggression, and emotion between the exercise and low-exercise groups was statistically significant ( $P < 0.05$ ). Somatization, % obsessive-compulsive disorder, and anxiety scores in the low dosage group were more important than those in the exercise group, ranking the total score as an average, positive number. The average SCL-90 score for the Taijiquan/Taijijian exercise group was the lowest among all values, many better, plus indicators, and the six components of somatization, sadness, mistrust, fear, aggression, and psychological health. In addition to the importance of symptom-related problems, there were statistically significant differences in sports among other events ( $P < 0.05$ ), showing that Taijiquan/Taijijian had the most significant effect on enhancing the mental health of middle-aged and elderly individuals. It should be emphasized that the walking/jogging group had the lowest rate of depression compared to the Qigong exercise group. The overall score between the difference between the exercise group and the few exercise groups and the number of active items was statistically significant, showing that the mental health level of those who regularly engage in sports and fitness was superior to that of those who seldom exercise. Conventional physical therapy is effective for body discomfort, reduces the symptoms of schizophrenia, and increases life pleasure and desire. Figure 2 depicts the stated results.

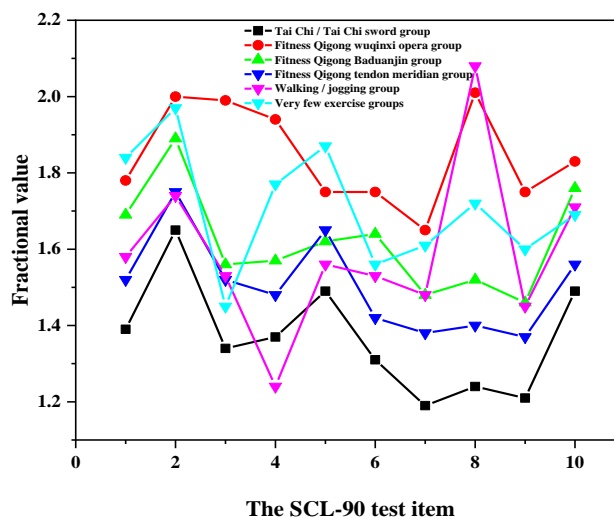


Figure 2. Comparison of SCL-90 Test Items

### 4.3 Immune function test results

The accumulative findings of  $CD_3^+T$ ,  $CD_4^+T$ ,  $NK$  cells between the exercise groups and the little exercise groups were different. The difference was statistically significant ( $P < 0.05$ ); the  $CD_3^+T$ ,  $CD_4^+T$ ,  $NK$  level of the few exercises group was lower than that of the exercise group. The overall average percentage of  $CD_4^+T\%$ ,  $CD_8^+T\%$ ,  $NK$  cells in the Taijiquan group was the highest, and the  $CD_4^+T$ ,  $CD_8^+T$  level of the Bodybuilding Qigong Baduanjin was the highest. The results are reported in Table 4. It demonstrates that bodily work positively regulates the digesting system (Shih, Shih, & Chen, 2020).

Table 4

Comparison of Immune Indexes in Each Group

| Immune index | Taijiquan/Taijijian | Fitness Qigong Baduanjin Group | Fitness Qigong Wuqinxi Group | Fitness Qigong Tendon Changing Classic Group | Walking/jogging group | Rarely exercise group | F value |
|--------------|---------------------|--------------------------------|------------------------------|--|-----------------------|-----------------------|---------|
| $CD_3^+T$    | 66.87±4.97          | 69.17±4.64                     | 65.17±4.37                   | 64.68±4.72                                   | 63.17±4.72            | 60.17±4.13            | 2.33    |
| $CD_4^+T$    | 49.97±5.50          | 46.37±5.38                     | 40.58±5.30                   | 42.04±5.48                                   | 45.14±5.74            | 36.95±4.83            | 2.47    |
| $CD_8^+T$    | 24.32±4.53          | 26.02±4.23                     | 23.06±4.47                   | 24.95±4.66                                   | 22.02±4.03            | 19.02±3.73            | 2.17    |
| IgG(g/L)     | 12.78±2.32          | 11.68±1.59                     | 12.18±2.10                   | 13.08±1.77                                   | 11.28±1.43            | 13.65±1.94            | 2.24    |
| IgA(G/L)     | 2.58±0.83           | 2.74±0.73                      | 2.52±0.69                    | 2.08±0.59                                    | 2.28±0.73             | 2.99±0.73             | 2.16    |
| IgM(g/L)     | 1.72±0.51           | 1.87±0.48                      | 1.68±0.58                    | 1.83±0.47                                    | 1.76±0.52             | 2.06±0.89             | 2.11    |
| NK           | 49.82±8.11          | 43.18±8.40                     | 35.99±6.33                   | 38.78±6.50                                   | 37.08±8.52            | 28.18±8.17            | 3.32    |

## 5. Discussion

The results of this study reveal that the scores of positive emotions such as activity, pleasure, and relaxation were considerably higher in each exercise group than in the group that did not exercise ( $P < 0.05$ ) (Wan, Shen, & He, 2022). In addition to the thinking component, the ratings of anger, excitement, despair, and inactivity were significantly lower in each exercise group

compared to the few exercise group; the difference was statistically significant ( $P < 0.05$ ). It demonstrates that regular physical activity can please the body and mind and alleviate worry, anger, tension, and other negative feelings (Chen et al., 2022). This conclusion requires future research, as the few exercise group is only inferior to the Taijiquan/Taijijian group in interpersonal connection aspects while outperforming other exercise groups. First, it is the characteristic movement of

Taijiquan, known as "thought relaxing and mind congealing." The second is the "breathing mode" of Taijiquan. When practicing Taijiquan, you should have a quiet mind, eliminate distractions, focus your thoughts, and have a favorable training effect on the brain.

Typically, abdominal breathing is used to perform Taijiquan; it has a calming effect when people are anxious; the final aspect of Taijiquan is its "harmony." Taijiquan practitioners connect their thoughts, breath, and motions with their feet and brains. From a psychological perspective, human attention is limited by directivity. Simulating the movements of five birds requires the effective cooperation of all parts of the body, the mobilization of people's all-round senses, the exercise of people's sense of rhythm and time and space, and the cultivation of the brain's ability to control and coordinate all parts of the body, which is advantageous to the development of human intelligence.

Table 4 shows the accumulative results of  $CD_4^+T$ ,  $NK$  cells in the Taijiquan/Taijijian group is the highest, and the  $CD_3^+T$ ,  $CD_4^+T$  level of fitness Qigong Baduanjin cluster is the highest. This study shows that traditional healthcare sports have a two-way benign regulating effect on the human immune system, which is conducive to the balance of immune system functions, which is in apparent contrast with the few exercise groups (Liu et al., 2020). The researchers will take this as an inspiration to promote the clinical application of traditional exercise prescriptions. We will continue to explore a holistic medical model that conforms to the "physiology psychology society" (Foong & Kwan, 2021).

## 6. Conclusion, Implications, and Future Directions

Based on research on the health care and psychological adjustment of athletes during the aging process, differences in cognition, brainpower, psychology, psychological state, bodily well-being, and immunity between those who engage in more physical activity and those who engage in less physical activity were discovered, providing the basis for research by middle-aged and elderly individuals to guide physical activity. The results indicate that all forms of exercise have incomplete mental, physical, and psychological benefits; however, middle-aged and elderly individuals can acquire comprehensive psychological and physiological health effects by participating in various sports. In stark contrast to other exercise groups, this study demonstrates that traditional health care exercise has a bidirectional

caring regulating effect on the digestive system, which promotes the equilibrium of immune system function. While advocating the practical use of traditional exercise prescribing, the authors will utilize this as motivation to continue investigating a holistic medical model consistent with a "physiological psychology society." Physical exercise rehabilitation benefits the mental health and immunological function of middle-aged and elderly individuals. From a psychological perspective, human attention is limited by directivity. Simulating the movements of five birds requires the effective cooperation of all parts of the body, the mobilization of people's all-round senses, the exercise of people's sense of rhythm and time and space, and the cultivation of the brain's ability to control and coordinate all parts of the body, which is advantageous to the development of human intelligence.

This research has improved the body of knowledge and has substantial consequences for the existing body of literature. According to the study, improving human health by maintaining stability is feasible. Human health is profoundly affected by physical activity. This study examines the role of different types of exercise and training that are beneficial for enhancing mental health through sports. In this study, the influence of sport in improving the populace's health is deemed significant. These theoretical implications of the study are credible in the body of literature, and they also contribute to the expansion of knowledge.

This research demonstrated that the community should organize, direct, and supervise frequent sporting activities for the elderly. In addition, the community should pick suitable sports equipment for the elderly and give long-term attention to the execution of their activities. Thus, the community is obligated to assist the elderly through health education and individualized health guidance and to assist them in developing a healthy sense of self-health management so that regular sports participation can be maintained for an extended period. This study has not investigated the population mentioned above long-term due to the constraints imposed by the major structure and training time. To test the findings of this study, the researchers must collect data from a different sample and a different geographic region.

## Acknowledgments

This work was supported by the National Legal and Legal Theory Research Project of the Ministry of Justice of the People's Republic of China in 2019: "Research on the Construction of China's Long-term Care Insurance Legal System" (Grant:19SFB3028).

## References

- Abdoli, N., Salari, N., Darvishi, N., Jafarpour, S., Solaymani, M., Mohammadi, M., & Shohaimi, S. (2022). The global prevalence of major depressive disorder (MDD) among the elderly: A systematic review and meta-analysis. *Neuroscience & Biobehavioral Reviews*, 132, 1067-1073. <https://doi.org/10.1016/j.neubiorev.2021.10.041>
- Bauer, M., Glenn, T., Geddes, J., Gitlin, M., Grof, P., Kessing, L. V., Monteith, S., Faurholt-Jepsen, M., Severus, E., & Whybrow, P. C. (2020). Smartphones in mental health: a critical review of background issues, current status and future concerns. *International journal of bipolar disorders*, 8, 1-19. <https://doi.org/10.1186/s40345-019-0164-x>
- Chen, B., Chen, Z., Liu, Y., Zhu, S., & Cai, X. (2022). Effects of garbage salvaging and suspended crossbar on microplastic pollution along a typical urban river. *Environmental Geochemistry and Health*, 1-10. <https://doi.org/10.1007/s10653-021-01084-w>
- Chen, Q., Ran, L., Li, M., & Tan, X. (2021). Health-related quality of life of middle-aged and elderly people with hypertension: A cross-sectional survey from a rural area in China. *PLoS One*, 16(2), e0246409. <https://doi.org/10.1371/journal.pone.0246409>
- Dai, J., & Menhas, R. (2020). Sustainable development goals, sports and physical activity: the localization of health-related sustainable development goals through sports in China: a narrative review. *Risk management and healthcare policy*, 1419-1430. <https://www.tandfonline.com/doi/full/10.2147/RMHP.S257844>
- Foong, P. L. C., & Kwan, R. W. S. (2021). Understanding mental health in Malaysian elite sports: a qualitative approach. *Malaysian Journal of Movement, Health & Exercise*, 10(1), 33. <https://doi.org/10.4103/2231-9409.328215>
- Gao, Y., Ping, Z., Pei, X., Cai, Y., & Wang, J. (2020). Multi-correspondence analysis of the status and related factors of chronic diseases multimorbidity in middle-aged and elderly people in China in 2009. *Wei Sheng yan jiu= Journal of Hygiene Research*, 49(5), 844-849. <https://doi.org/10.19813/j.cnki.weishengyanjiu.2020.05.026>
- Gorczyński, P., Currie, A., Gibson, K., Gouttebauge, V., Hainline, B., Castaldelli-Maia, J. M., Mountjoy, M., Purcell, R., Reardon, C. L., & Rice, S. (2021). Developing mental health literacy and cultural competence in elite sport. *Journal of Applied Sport Psychology*, 33(4), 387-401. <https://doi.org/10.1080/10413200.2020.1720045>
- Kim, J., Lee, J., Park, J., Choi, D. H., Kim, E., Kim, J., You, M., Lim, M., Lee, H., & Ju, S. (2014). Comparative study on the attitudes of female seniors and female university students toward seniors. *Technology and Health Care*, 22(3), 489-495. <https://doi.org/10.3233/THC-140808>
- Kim, Y. M., Kim, J. D., & Jung, H. (2021). A Cross-Sectional Study of the Effects of Physical Activity and Nutrient Intakes on Blood Glucose Control Rates in Middle-Aged and Elderly Diabetes Patients: Korean National Health and Nutrition Examination Survey 2015-2017. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 58. <https://doi.org/10.1177/00469580211035727>
- Lawthom, C. (2020). Carbamazepine: Out with the old, in with the new? *Seizure-European Journal of Epilepsy*, 83, 246-248. <https://doi.org/10.1136/bmj.m1969>
- Lee, H. J., & Lee, D. K. (2019). Do sociodemographic factors and urban green space affect mental health outcomes among the urban elderly population? *International journal of environmental research and public health*, 16(5), 789. <https://doi.org/10.3390/ijerph16050789>
- Liu, K., Chen, Y., Lin, R., & Han, K. (2020). Clinical features of COVID-19 in elderly patients: A comparison with young and middle-aged patients. *Journal of Infection*, 80(6), e14-e18. <https://doi.org/10.1016/j.jinf.2020.03.005>
- Liu, X., Lin, Q., Fan, K., Tang, M., Zhang, W., Yang, B., & Ou, Q. (2021). The effects of genetic polymorphisms of APOE on circulating lipid levels in middle-aged and elderly Chinese Fujian Han population: toward age- and sex-personalized management. *Lipids in Health and Disease*, 20(1), 1-12. <https://doi.org/10.1186/s12944-021-01587-6>
- Meng, H., Xu, Y., Dai, J., Zhang, Y., Liu, B., & Yang, H. (2020). Analyze the psychological impact of COVID-19 among the elderly population in China and make corresponding suggestions. *Psychiatry research*, 289, 112983. <https://doi.org/10.1016/j.psychres.2020.112983>
- Ntoumanis, N., Ng, J. Y., Prestwich, A., Quested, E., Hancox, J. E., Thøgersen-Ntoumani, C., Deci, E. L., Ryan, R. M., Lonsdale, C., & Williams, G. C. (2021). A meta-analysis of self-determination theory-informed intervention studies in the health domain: Effects on motivation, health behavior, physical, and psychological health. *Health psychology review*, 15(2), 214-244. <https://doi.org/10.1080/17437199.2020.1718529>
- Öhman, H. R., Karppinen, H., Lehti, T. E., Knuutila, M. T., Tilvis, R., Strandberg, T., Kautiainen, H., & Pitkala, K. H. (2022). Secular trends in functional abilities, health and psychological well-being among community-dwelling 75-to 95-year-old cohorts over three decades in Helsinki, Finland. *Scandinavian Journal of Public Health*, 50(4), 524-531. <https://doi.org/10.1177/14034948211007688>

- Pierce, B. S., Perrin, P. B., & McDonald, S. D. (2020). Demographic, organizational, and clinical practice predictors of US psychologists' use of telepsychology. *Professional Psychology: Research and Practice*, 51(2), 184–193. <https://doi.org/10.1037/pro0000267>
- Reardon, C. L., Bindra, A., Blauwet, C., Budgett, R., Campriani, N., Currie, A., Gouttebauge, V., McDuff, D., Mountjoy, M., & Purcell, R. (2021). Mental health management of elite athletes during COVID-19: a narrative review and recommendations. *British journal of sports medicine*, 55(11), 608–615. <https://doi.org/10.1136/bjsports-2020-102884>
- Reed, R. G., Combs, H. L., & Segerstrom, S. C. (2020). The structure of self-regulation and its psychological and physical health correlates in older adults. *Collabra: Psychology*, 6(1), 23. <https://doi.org/10.1525/collabra.297>
- Samifanni, F., & Gumanit, R. L. R. (2021). Survival with technology: Elderly teachers' perspective towards emergency online learning during the COVID-19 pandemic in the Philippines. *Studies in Learning and Teaching*, 2(3), 98–114. <https://doi.org/10.46627/silet.v2i3.87>
- Shih, Y.-L., Shih, C.-C., & Chen, J.-Y. (2020). The association between walking speed and risk of cardiovascular disease in middle-aged and elderly people in Taiwan, a community-based, cross-sectional study. *PLoS One*, 15(7), e0235277. <https://doi.org/10.1371/journal.pone.0235277>
- Song, J., Gao, Y., Hu, S., Medda, E., Tang, G., Zhang, D., Zhang, W., Li, X., Li, J., & Renzi, M. (2021). Association of long-term exposure to PM2.5 with hypertension prevalence and blood pressure in China: a cross-sectional study. *BMJ open*, 11(12), e050159. <https://doi.org/10.1136/bmjopen-2021-050159>
- Wan, X., Shen, J., & He, G. (2022). Effects of Traditional Chinese Exercises on Frailty, Quality of Life, and Physical Function on Frail and Pre-Frail Older People: A Systematic Review and Meta-Analysis. *The Journal of Frailty & Aging*, 11(4), 407–415. <https://doi.org/10.14283/jfa.2022.52>
- Wang, C., Wang, L., Hou, L., Lu, H., & Shang, S. (2022a). Determinants of Self-Rated Health Among Middle-Aged and Elderly Patients with COPD: The China Health and Retirement Longitudinal Study. *Clinical Nursing Research*, 31(1), 80–88. <https://doi.org/10.1177/10547738211018818>
- Wang, D., Gao, H., Xu, X., Han, D., Yi, K., & Hou, G. (2022b). Analysis of influence of physical health factors on subjective wellbeing of middle-aged and elderly women in China. *BMC Public Health*, 22(1), 1127. <https://doi.org/10.1186/s12889-022-12655-6>
- Xiao, Y., Luo, Q., Yu, Y., Cao, B., Wu, M., Luo, Y., Zhao, Y., & Zhou, J. (2021). Effect of baduanjin on the fall and balance function in middle-aged and elderly people: A protocol for systematic review and meta-analysis. *Medicine*, 100(37), e27250. <https://doi.org/10.1097/MD.00000000000027250>
- Zhang, X., Miao, W., Wu, B., Lai, Y., Jiao, M., Xia, Q., Zhang, C., Tian, W., Song, Z., & Shan, L. (2022). Factors that dynamically affect provincial incidences of catastrophic health expenditure among middle-aged and elderly Chinese population-transition of disease financial risk protection from global to local. *BMC geriatrics*, 22(1), 1–14. <https://doi.org/10.1186/s12877-022-03432-6>