Indoor Gateball’s Influence on Life Satisfaction and the Prevention of Falls by the Elderly

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Abstract. [Purpose] The purpose of this study was to investigate the effects of indoor gateball exercise on life satisfaction and the prevention of falls by the elderly. [Subjects] Sixteen elderly subjects aged 65 or more, residents in nursing care facilities, were randomly divided into two groups. [Methods] One group performed indoor gateball exercise for 30 minutes a day, five times per week. The Tetrax fall index and life satisfaction were measured before and after four weeks of gateball exercise. [Results] The indoor gate ball exercise group showed significant improvements in the fall index and life satisfaction. [Conclusion] The indoor gateball exercise used in this study should be considered as a therapeutic method for the elderly, for improving their life satisfaction and because of its effectiveness in preventing falls.

Key words: Elderly, Fall, Life satisfaction

INTRODUCTION

Falls and their accompanying injuries among the elderly, whose population is increasing, are common issues in modern society3). It was reported that more than 30% of the elderly, aged 65 or more experience injury at least once from a fall, and 50% of the elderly, aged more than 80, experience injury from a fall every year, since the frequency of falls increases with age3). Human proprioception deteriorates with age, muscle strength weaken and reflexes, the ability to cope with sudden events, decline with increase of age and due to physiological changes related to the aging process. These declines in function adversely influence balance, a common cause of falls3). It has been reported that gateball can help the elderly to develop human relations through socializing with others3). But gateball can only be played by those who can move around outdoors freely, and it requires the provision of athletic facilities. To address these issues and to allow people to enjoy gateball indoors, gateball was modified for indoor play. This study was conducted to investigate whether indoor gateball gives more relaxation than outdoor gateball, and whether it is suitable for the elderly who have trouble performing outdoor activities. We investigated the effects of indoor gateball on maintenance of fitness, feelings of loneliness and quality of life, and whether indoor gate ball can be used continuously as a physical fitness exercise.

SUBJECTS AND METHODS

Subjects

Sixteen elderly persons residing in nursing care facilities in Yong-in city, Kyong-gi do, were selected as the subjects of this study. They took part in this study which lasted for 4 weeks from January to March 2013, after being randomly divided into two groups. Prior to participation in the study, written informed consent, accepted by the local ethics committee, was obtained from all subjects. The subjects who could understand this study’s substance, and had no musculoskeletal disorders or vestibular/hearing/visual organ disorders. The average age of the experimental group was 69.68 years and that of control group was 71.62 years. The average height and weight of the experimental group were 159.43 cm and 59.11 kg respectively, and those of control group were 160.43 cm and 59.30 kg, respectively. The gender ratio of the experimental group was 3 males to 5 females and that of the control group was 4 males to 4 females

Methods

An oblong mat, 1 × 5 m², was used. Scoring zones were set at both ends of the play mat and the players hit the balls to both ends of the mat. A T-shaped mallet, comprised of head and shaft, was used to strike the ball. One number, out of 1, 2, 3, 4, 5, 10, is put on each of the six balls, each of which is 7.5 cm in diameter. The number assigned to each area where the hit ball stops becomes the player’s score, and the player will get double points if the hit ball stops in the area which has the same number as the ball. The subject’s general characteristics and performance data were entered into SPSS version 18.0. The paired t-test was performed to examine changes within each group. The independent t-test was used for inter-group comparison. The level of statistical
RESULTS

After the four-week gateball intervention, the experimental group showed a statistically significant improvement in the life satisfaction scale from 36.87±0.11 to 41.75±0.83 (p<0.05), but the control group showed no significant increase, 37.50±0.22 and 38.06±0.45 (p>0.05), respectively. After the intervention, the experimental group showed a statistically significant decrease in the Tetrax fall index, from 47.12±0.36 to 40.68±0.23 (p<0.05), but the control group showed no significant difference, 47.25±0.25 and 46.25±0.04 (p>0.05), respectively.

DISCUSSION

Analysis of the causes of falls by the elderly, has identified postural sway as an index of fall risk\(^5\). It is known that the elderly who participate in physical activities, are better not only in terms of cognitive behavior, psycho-social characteristics and physical/medical health but also in terms of euphoria and life satisfaction, compared to those who do not participate in physical activities\(^6\). Generally, the elderly suffer from social isolation and economic difficulties as their physical strength deteriorates and their sense of belonging and human relations declines without a steady job. Under such circumstances, the elderly’s life satisfaction deteriorates, and their stress increases to the point where they pay little attention to physical activities in a state of no desire for living. The reality of the elderly in this modern society is that they repeat this kind of vicious circle without escaping from it. Consequently, sports suitable for the elderly are urgently required, as sports can help the elderly to improve human relations, get rid of stress, and maintain their physical strength through exercising regularly. The results of our present study are similar to those of previous research in that the fall index showed a statistically significant decrease (p<0.05) after the implementation of the gateball exercise intervention. The more actively and consistently the elderly participate in gateball activity, the more they can develop positive elements such as the cognitive aspect of the consciousness of leisure activity and belief in leisure activity\(^7\). This means that the elderly participating in indoor gateball can interact with others and have expectations about their future. It also signifies that indoor gateball exercise helps the elderly to be optimistic. The fall index and life satisfaction degree of the elderly improved after the implementation of the indoor gateball exercise, indicating that participation in sports helps the elderly to maintain their daily living. The limited number of subjects for the experiment and the lack of time given to the subjects for performing the exercises were limitations of this study. However, this study discovered that indoor gateball can help the elderly with physical impairments recuperate mentally as well as physically. Future studies should address these issues and include subjects living in the community and care facilities in indoor gateball activities.

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