



## A Comparison of Different Qigong Exercise Types on Health in Female College Students

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### Abstract

**Background and Aim:** Ba Duanjin and Yi Jin Jing constitute integral components of traditional Chinese health preservation and fitness culture. Ba Duanjin, a form of Qigong practice, underscores the harmony and unity between body and spirit, emphasizing movement within stillness. On the other hand, Yi Jin Jing is an ancient martial arts practice. This research aims to compare the health status of female college students with different types of Qigong exercise.

**Materials and Methods:** A total of 90 first-year female college students who were not majoring in physical education and did not learn fitness Qigong were selected to participate in this study. Qigong exercises were conducted for 12 weeks. Bmi test, vital capacity test, sit-and-reach test, standing long jump test, and 50-meter and 800-meter run test were conducted before and after the experiment. Content analysis and descriptive statistics were used to analyze the data.

**Results:** It was found that female college students after practicing "Ba Duanjin", "Yi Jin Jing" or the combination of "Ba Duanjin" and "Yi Jin Jing". The psychology of female college students has been improved to a certain extent. They have also gained physical fitness, the most notable of which is an increase in flexibility.

**Conclusion:** When the students participated in the combined training of "Ba Duanjin" and "Yi Jin Jing", it was found that there was a significant increase in lung capacity, an increase in forward bending, and a significant decrease in BMI. However, there was no significant improvement in the 80 meters and 500 meters.

**Keywords:** Comparison; Different Qigong Exercise; Health

### Introduction

In recent years, the physical quality of Chinese female college students has attracted wide attention from society and academic circles. Compared with men, the physical condition of female college students showed a poor trend. About 60% of female college students have weight and nutritional imbalance problems, such as overweight and malnutrition. At the same time, due to various factors such as academic pressure and employment pressure, the psychological pressure of female college students is increasing, which indirectly affects their willingness and time to participate in physical exercise, and the lack of physical exercise makes the physical quality of female college students decline.

Ba Duanjin and Yi Jin Jing are an important part of the traditional Chinese health preservation and fitness culture (Wu, 2017). Ba Duanjin is a method of Qigong practice that originated from Taoism, which emphasizes the harmony and unity between body and spirit and pursues the movement in stillness. The Yi Jin Jing is an ancient martial arts practice, which was recorded as early as the 6th century AD. It emphasizes the exercise of muscles and tendons through a series of exercises to build physical strength, endurance, and flexibility. In practice, it pays attention to the coordinated development of muscle groups, challenges the body through constantly changing posture, promotes muscle growth, and improves the body's adaptability. Unlike Ba Duanjin, Yi Jin Jin focuses more on





strength and flexibility and seeks to find stillness in the movement. Both emphasize different aspects but both have played a positive role in promoting physical health and improving quality of life. Although there are differences in practical methods and purposes, they also have something in common in some aspects. Both emphasize physical conditioning and exercise, focusing on respiratory control and harmony between the body and mind. Ba Duanjin is based on Qigong and emphasizes the coordination of energy, while Yi Jing focuses on muscle fitness. At present, both Ba Duanjin and Yi Jin Jing are an important part of the physical education courses in Chinese universities and become one of the important forms of physical exercise for college students.

## Objectives

### *Main objective*

To compare the health status of female college students with different types of Qigong exercise

### *Subsidiary objectives*

2.1 Study whether there are differences between Ba Duanjin and Yi Jin Jing.

2.2 Can female college students continue to exercise after exercising for some time?

## Literature review

Ba Duanjin and Yi Jin Jing are the treasures of Chinese traditional culture. Ba Duanjin originated in the Northern and Southern Dynasties and is a set of campaigns to improve health and treat diseases. These movements are not only easy to learn, but they can also regulate the body and strengthen the immune system by breathing and stretching. On the other hand, Yi Jin Jing originated from the Shaolin Temple in the 5th century AD, which not only emphasizes the strengthening of muscles, ligaments, and bones but also emphasizes the concentration and calm of the spirit, reflecting the concept of the combination of internal and external cultivation. Both styles demonstrate a holistic approach to physical and mental health and the pursuit of internal strength and balance (Shi, 2002).

In modern times, these two ancient fitness activities are valued not only in China but also in the world. Foreign literature considers them as effective tools to relieve stress and improve quality of life, as well as a bridge between modern people and ancient wisdom. Whether for physical health or spiritual cultivation, Ba Duanjin and Yi Jin Jing provide a path to a better quality of life. Most scholars have studied the development process and effectiveness of Ba Duanjin and Yi Jin Jing. Some scholars believe that the practice of Ba Duanjin and Yi Jin Jing will have a certain impact on women's health, and when exercising Ba Duanjin and Yi Jin Jing, the practitioners do not have any health problems. Usually in the exercise of Ba Duanjin and Yi Jin Jing, the exerciser does not have too much physical consumption, but the spirit is highly concentrated. In the practice of Ba Duanjin, we can find that some strokes are designed to practice Qigong, which can regulate the conversion of cerebral cortical excitation and inhibition to a certain extent. Exercise, the exerciser needs to keep the head high, and keep the chest straight for a long time, and some exercises need to open the bow from left to right to emphasize the opening of the chest. To some extent, this improves the lung capacity of the exercisers (Zhang & Hao, 2019). Through the practice, the practitioner feels calm and relaxed (Qin, 2012). From a psychological point of view, Ba Duanjin is characterized by exercise in the natural state, without the tension and fatigue caused by strenuous exercise. It enables the exerciser to achieve inner peace by changing their breathing and reaching a state of peace of mind, which can relieve anxiety to some extent (Chen, 2012).

In terms of physical quality, the practice of "Ba Duanjin" can improve the flexibility and balance of the exercisers. It has a certain reinforcing effect on the body.

In the study of the Yi Jin Jing. Most scholars believe that the movement of the easy jin meridian is mainly the slow movement of regular stretching muscles so that the body stretches to get a soothing effect. Easy tendons can improve local blood circulation through stretching and twisting movement, which can greatly improve the flexibility of the body. In the process of practice, you need to breathe out and inhale at the same time according to the action (Xiang, et al, 2006). This increased the lung capacity to a small extent. From a psychological point of view, Yi Jin Jing has some specific movements to adjust the state and the pursuit of the natural state of body and mind. These movements will put the exerciser into an optimal mental state and require high concentration during the exercise. With continuous exercise the exercisers, their anxiety can be relieved (Hong et al, 2013).

Some scholars have made relevant comparisons. The research content is for female college students to practice Ba Duanjin and Yi Jin Jing respectively (Liu & Zhang, 2022). After some time, the girls showed different changes. In terms of physical quality, Ba Duanjin can improve the balance and ankle strength of female students (Zhang, 2018). On the other hand, the Yi Jin Jing meridian practice has more twisting and pulling movements, so it is designed to improve the flexibility of women. Psychologically, both Ba Duanjin and Yi Jin Jing can effectively improve the psychological status of female college students, mainly to reduce the degree of anxiety, reduce bad mood, and promote physical and mental happiness. However, it is more effective in producing activity, happiness, peace, and excitement in girls (Wei et al, 2017).

## Conceptual Framework

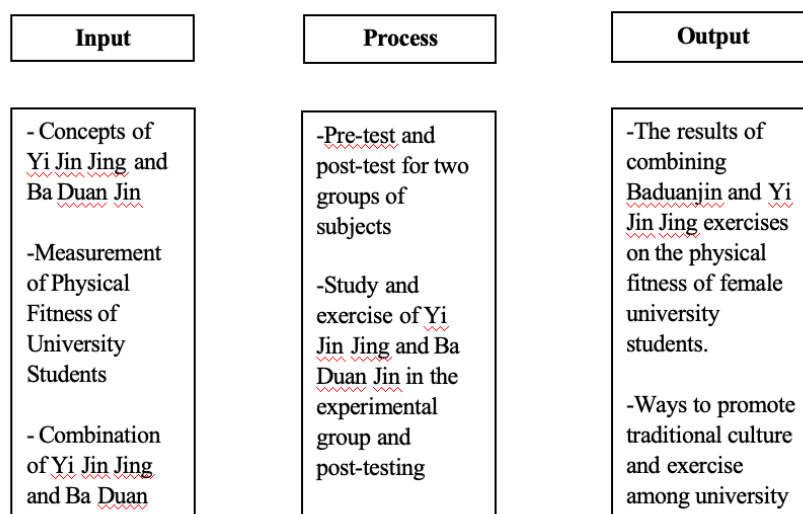


Figure 1 Conceptual Framework of this research

## Methodology

1. Population and sample: A total of 90 first-year female college students who were not majoring in physical education and did not learn fitness Qigong were selected to participate in this study. All 90 female college students were used in the experiment

2. Research tools



2.1 Experimental method: A controlled experiment was used in this study. By strictly controlling variables, controlled experimental methods enable a more accurate determination of causality. Because experimental conditions and parameters are pre-set and controlled, controlled experiments tend to be easier to repeat, which helps verify the reliability of the results.

2.2 Psychological Measurement; (1) BFS Emotional Scale, (2) SDS Depression Scale, and (3) SAS Anxiety Scale (SAS)

3. Data Collection: (1) Use the National Physical Health Standard for Students (Revised in 2014) to guide the measurement of follow-up data and standardization of related measurements. (2) Bmi tester, which measures the participants' Bmi before and after exercise. (3) Lung volume tester, used to test the participants' lung capacity before and after exercise. (4) The electronic timer will time the participants for 50 meters and 800 meters. (5) As a valve body pre-buckling tester, it is used to measure the valve body pre-buckling. And (6) A tape measure that measures how far a participant jumps standing.

4. Data Analysis; (1) Content analysis: Analysis of expert data. (2) Descriptive statistics: Used to analyze data from pre - and post-experimental tests. (3) The measurement data were grouped by software package, and the experimental data were comprehensively analyzed. And (4) Conclusions have been reached and revised based on the consultant's recommendations.

#### 5. Research process

Step 1: Gather and create a conceptual framework; (1) Literature review, expert interview, and summary. And (2) Create a conceptual framework and research design.

Step 2: Develop research tools; (1) Find the appropriate test method according to the corresponding indexes involved in the experiment.

Step 3: Experimental process; (1) The patients were divided into three groups using the standardized test method, which were named as experimental group 1, experimental group 2, and experimental group 3. And (2) To ensure the accuracy of experimental data and the cooperation of students, the experiment was conducted for one semester, that is three months of practice.

## Results

### 1. The influence of the Ba Duanjin experimental group on the physical and mental health of female college students

#### 1.1 Changes in physiological function and exercise ability

Table 1 Comparison of the subjects' physiological function and exercise ability indicators before and after the experiment

	Before the experiment	After the experiment	p
Vital capacity (ml)	2461.24±942.39	2723.64±917.10	0.103
Sitting stretch (cm)	12.12±9.61	12.88±5.73	0.213
50m (s)	9.17±0.87	9.19±0.32	0.453
800m (min*s)	3.97±0.43	3.91±0.27	0.237
BMI (kg/m <sup>2</sup> )	19.44±2.85	19.32±2.68	0.328
Standing long jump (cm)	165.47±7.53	173.57±6.31	0.004

As shown in Table 1, the performance of 50m and 800m were not significantly different from the



pretest performance after the practice. It can be inferred that due to the low intensity of exercise, less explosive strength, and endurance, there was no significant improvement. In addition, the experimental indicators of vital capacity and sitting forward flexion were improved compared with before the experiment, but the difference was not obvious, and the difference was not statistically significant. The P-value for standing long jump was 0,004,  $P < 0.05$ . The rest of the data measures were increased but not significant and may require more time to practice to make a significant difference.

### 1.2 Changes in mental health

Table 2 shows the index changes in the emotional state of the subjects before and after the experiment

	Before the experiment	After the experiment	P
Activity	14.46±4.79	15.92±4.15	0.265
Glad	13.83±4.38	15.04±3.06	0.049
Worry	11.46±3.30	9.36±3.82	0.962
Peace	14.08±3.98	14.67±4.22	0.624
Irascibility	7.56±2.85	7.21±3.01	0.510
Excitability	8.67±2.65	9.63±3.41	0.283
Suppression	7.46±2.38	7.23±2.91	0.628
Inactivity	8.92±3.23	8.71±3.84	0.840

As can be seen from Table 2, after the Ba Duanjin exercise, the subjects showed different degrees of improvement in their emotional state before and after the experiment, especially in pleasant and benign mental states, and  $P < 0.05$  was a significant difference. The experimental results show that the "mental" exercise of fitness Qigong can improve the psychological state, relieve mood, promote happy mood, and relieve bad emotional state.

Table 3 Comparison of the results of depression and anxiety indicators before and after the experiment

	Before the experiment	After the experiment	P
SAS	34.50±4.75	31.76±4.98	0.031
SDA	44.79±5.90	40.96±3.97	0.016

As shown in Table 3, after 12 weeks of practice, the Ba Duanjin anxiety and depression scale decreased to different degrees, which was statistically different at  $P < 0.05$  for both scales. The experimental results show that "badJin" practice can improve anxiety and depression, improve negative mood, and reduce bad psychological state.

## 2. The influence of Yi Jin Jing experiment group on the physical and mental health of female college students

### 2.1 Changes in physiological function and exercise ability





Table 4 Comparison of the physiological function and exercise ability indicators before and after the experiment

	Before the experiment	After the experiment	P
Vital capacity (ml)	2493.17±944.43	2612.15±903.45	0.156
Sitting stretch (cm)	12.29±8.20	14.65±5.32	0.001
50m (s)	9.24±0.46	9.15±0.32	0.533
800m (min*s)	3.94±0.37	3.83±0.34	0.138
BMI (kg/m <sup>2</sup> )	19.67±2.04	19.47±2.37	0.038
Standing long jump (cm)	168.25±8.73	165.47±7.53	0.359

Table 4 shows that the lung capacity index improved before the experiment, but the change is not obvious, and not significant, and the body before bending the difference,  $P=0.001$ , the difference is significant, the experimental results show that health qigong Yi Jin Jing movement has a positive effect on physical quality, especially the flexibility quality is improved significantly. The experimental results show that the exercise of fitness Qigong has a positive impact on physical health, especially the quality of soft strength. In this experiment, we believe that the practice has a good effect on the flexibility of college students, due to the various movements of practicing the skill technique playing an important role. The latter two positions need to pull the vertebral body, forward flexion, curl, and then let the spine relax and straighten, so that the muscle groups of the human body and the connective tissue such as the fascia and tendon, can promote the blood circulation of soft tissue and improve the flexibility of the body.

## 2.2 Changes in mental health

Table 5 Comparison of mood changes before and after the experiment

	before the experiment	After the experiment	P
activity	14.83±4.30	17.58±3.13	0.015
cheerfulness	15.08±3.44	15.58±3.15	0.706
worry	10.58±3.06	9.57±4.51	0.008
peace	13.67±14.08	15.13±2.63	0.067
irritability	7.46±2.04	5.03±3.38	0.004
excitability	7.79±2.72	10.33±3.59	0.012
Depressibility	7.13±2.36	5.13±2.86	0.004
inactivity	8.96±2.80	8.59±3.35	0.426

Table 5 shows that after 3 months of exercise, the group had a good effect, in which the active and excited benign mindset showed a significant difference, while the negative mindset of anger and depression showed a very significant difference. The experimental results show that after 12 weeks of



exercise, it can improve the psychological state, improve activities, reduce anxiety, promote calm, improve the psychological state, reduce anger, relieve depression, relieve psychology, disperse the production of negative emotions, and promote mental health.

Table 6 Comparison of statistical results of anxiety and depression indicators before and after the Yi Jin Jing group

	Before the experiment	After the experiment	P
SAS	33.96±5.41	29.34±3.73	0.001
SDA	44.50±4.59	39.65±2.68	0.002

Table 6 shows that after 12 weeks of exercise, the SAS anxiety scale and SDS depression scale values decreased, and the anxiety scale  $P = 0.001$ , depression scale  $P = 0.002$ ,  $P$  value  $< 0.05$ , which varied significantly before and after the experiment, showing a very significant difference. The experimental results show that Yi Jin Jing's exercise can improve anxiety, depression, and relieve mood.

### 3. The influence of the joint training of "Ba Duanjin combined with Yi Jin Jing" on the physical and mental activities of female college students

#### 3.1 Impact on physical health

Table 7 shows that after Ba Duanjin and Yi Jin Jing practice, the performance of 50 m and 800 m and the test were little, and both data showed no significant difference. From the data, lung capacity, sitting flexion, standing long jump, and experimental index all improved significantly, with  $P$ -values of  $< 0.05$ . It can be seen that the practice methods of Ba Duanjin and Yi Jin Jing can be applied in a variety of ways. It can be seen that the exercise method of Ba Duanjin combined with Yi Jin Jing can effectively improve the physical quality of female college students from various aspects.

Table 7 Comparison of physical fitness test results before and after Ba Duanjin and Yi Jin Jing

	Before the experiment	After the experiment	P
Vital capacity (ml)	2487±941.18	3364.23±663.53	0.001
Sitting stretch (cm)	12.23±9.31	14.88±5.73	0.001
50m (s)	9.12±0.60	9.14±0.38	0.453
800m (min*s)	3.90±0.38	3.91±0.27	0.237
BMI (kg/m <sup>2</sup> )	19.38±1.89	18.03±1.39	0.001
Standing long jump (cm)	163.26±6.31	174.62±6.95	0.003

#### 3.2 The influence of Ba Duanjin and Yi Jin Jing on the psychological state of female college students



Table 8 Comparison of mood changes before and after the experiment of Ba Duanjin and Yi Jin Jing

	before the experiment	After the experiment	P
activity	14.56±4.65	16.53±4.08	0.013
cheerfulness	14.05±3.31	18.02±3.21	0.003
worry	11.21±3.12	8.93±4.36	0.006
peace	13.90±0.38	13.25±2.81	0.086
irritability	7.63±3.08	5.17±2.91	0.002
excitability	7.96±2.73	11.52±2.81	0.006
Depressibility	7.35±2.33	4.93±3.17	0.007
inactivity	8.94±2.9	8.62±3.68	0.336

Table 8 shows that after three months of practice combined with Yi Jin Jing, the mentality of this group of female college students was greatly improved, with significant differences in the positive and considerate and happy and excited mentality, and significant differences in anger and depression. There were significant differences between positive and considerate, happy and excited benign mental states, and very significant differences in negative mental states of anger and depression. Through the analysis of experimental data, it can be seen that after 12 weeks of Ba Duanjin and Yi Jin Jing exercise, it can increase activity, reduce anxiety, reduce mood reduce fluctuations, improve mental state, make people no longer irritable, and easy to anger, comfort the mind, reduce the generation of negative emotions, and the impact on individuals. In the context of exercising Ba Duanjin and Yi Jin Jing respectively, the combination of the two can improve the psychological state of individuals in more dimensions. The benefits of the combination to the individual mental state are mutually reinforcing.

Table 9 Comparison of statistical results of anxiety and depression indicators before and after exercise

	Before the experiment	After the experiment	P
SAS	34.24±4.85	30.19±2.13	0.001
SDA	44.65±5.53	40.53±3.82	0.013

As shown in Table 9, after three months of Ba Duanjin and Yi Jin Jing exercise, the SAS anxiety scale and SDS depression scale decreased in this group, and anxiety scale  $P = 0.001$ , and depression scale  $P = 0.013$ ,  $P$  value  $< 0.05$ , the difference was obvious before and after the experiment, and the difference was very significant. The difference before and after the experiment was very significant. The experimental results show that Ba Duanjin and Yi Jin Jing easily improved anxiety and depression after exercise, and further improved the mental health of individuals through exercise.

## Conclusion

1. The teaching of "Ba Duanjin" and "Yi Jin Jing" is carried out at universities. In the case of "Ba Duanjin", for example, the teaching focuses on activities for teachers and students.
2. The "Ba Duanjin" sport was introduced at the university. During the three months, female





university students continued to exercise "Ba Duanjin". The physical fitness test showed a small increase in lung capacity and a decrease in forward bending. However, there were no significant changes in the 50m and 800m tests.

3. In the physical education class, some other students insisted on the practice of "Yi Jin Jing" for 3 months and found that there was no significant change in BMI, and there was a small increase in lung capacity and forward bending. However, there were no significant changes in the 50-meter and 800-meter tests.

4. When the students participated in the combined training of "Ba Duanjin" and "Yi Jin Jing", it was found that there was a significant increase in lung capacity, an increase in forward bending, and a significant decrease in BMI. However, there was no significant improvement in the 80 meters and 500 meters.

5. It was found that female university students, regardless of whether they practiced "Ba Duanjin", "Yi Jin Jing" or a combination of "Ba Duanjin" and "Yi Jin Jing" exercises, were more likely to have a higher level of fitness than their male counterparts. After practicing "Ba Duanjin", "Yi Jin Jing" or the combination of "Ba Duanjin" and "Yi Jin Jing". The psychology of female college students has been improved to a certain extent. They have also gained physical fitness, the most notable of which is an increase in flexibility.

## Discussion

According to the research results, the eight sections and one section have significant benefits for physical health and overall health. These exercises effectively increase flexibility and muscle strength while helping to relieve muscle tension and fatigue by improving blood circulation. It also helps improve joint flexibility and stability. In addition, the combination of these two skills is very beneficial to the respiratory system and can improve the depth and efficiency of breathing. On the psychological level, they can effectively reduce stress, improve emotional state, and help female college students cope with academic and life pressure. More importantly, they help to achieve harmony and balance between the mind and body and improve the coordination of the various parts of the body. This is consistent with the research result of Wei et al (2017), they research results showed that both Ba Duanjin and Yi Jin Jing can effectively improve the psychological status of female college students, mainly by reducing the degree of anxiety, reducing bad mood, and promote physical and mental happiness. However, it is more effective in producing activity, happiness, peace, and excitement in girls.

(1) The "eight-section strength" exercise is mainly based on lower limb strength, which needs to maintain body balance without shifting the center of gravity, strengthen the spine and waist and abdomen activities, and stabilize the lower limbs.

(2) "Yi Jin Jing focuses on the extension of muscles and increases the range of motion of joints through the extension of the body, thus effectively promoting relaxation and recovery."

(3) The influence of Yi Jin Jing and Badanjin on the flexibility of female college students is better than only these two exercises. Because the eight tendons and one tendon drive all parts of the body to move together through twisting, pulling, pulling, and other actions, it can make all parts of the human body get better exercise and strengthen the soft tissue while promoting blood circulation.

Since the long jump from standing up, students practice Yi Jinjing + Ba Duanjin, which can enhance the strength of leg muscles to a certain extent.

In terms of endurance, because the "easy tendon classics" and "eight sections of strength" are



medium to low degree aerobic fitness activities, the amount of activity is small, the movement is gentle, and the exercise needs to be gradual to achieve the best results.

## Recommendation

### 1. Recommendations for policy formulation

From the policy point of view, to promote the physical and mental health of college students and strengthen the understanding and inheritance of traditional Chinese culture, colleges, and universities can take a series of specific measures to promote the combination of "eight brocade" and "one brocade".

### 2. Suggestions for practical application

Create a curriculum that integrates the core elements of "Eight Duan Jin" and "I Ching". Special training has been given to physical education teachers to ensure that they can teach both skills effectively. Regularly organize performances or competitions to showcase students' academic achievements.

### 3. Relevant research suggestions

Related research shows that the physical fitness of college students has been improved significantly. This strongly demonstrates the significant benefits of practicing fitness Qigong on improving human health. As a popular fitness method, Qigong not only has the important value of carrying forward the traditional Chinese culture but also plays a key role in promoting the physical health of college students

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