

# ASSESSING THE SUITABILITY OF SOME BINH DINH TRADITIONAL MARTIAL ARTS EXERCISES FOR THE HEALTH OF THE ELDERLY

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## Abstract:

Using regular scientific research methods, we assess the suitability of some Binh Dinh traditional martial arts exercises on the health of the elderly. The study was conducted on 54 different subjects in Binh Dinh province. The research results show that: out of 6 Binh Dinh traditional martial arts exercises, only 3 exercises meet the standards suitable for the health of the elderly, those are the Thien Su exercise (Exercise 1), Thai Son exercise (Exercise 2), Hung Ke Quyen (Exercise 3). Health criteria achieved: increased pulse frequency does not exceed 70% Fmax, blood pressure and respiratory frequency also increase moderately; most of the opinions are comfortable with these exercises: 94,44% like exercise 1, 90,27% like exercise 2, 80,55% like exercise 4. These exercises are widely deployed at health preservation clubs, contributing to improving and maintaining the health for the elderly.

**Keywords:** Binh Dinh traditional martial arts, the elderly, health.

## INTRODUCTION

Currently, along with the development of society, the proportion of elderly people is increasing rapidly and really has become a concern of every country. In society, the elderly have a very important role. It is a class of people who have devoted their best to social life, deserving to be cared for by the society in all aspects for a healthy, joyful and productive life.

To maintain the health of the elderly, first of all, it is necessary to slow down the aging process with many measures such as proper nutrition, proper working regime, appropriate resting activities, etc. and above all, it is necessary to have a proper exercise regime, that is, the need to have proper regime, exercises to avoid the stagnation of old age.

Binh Dinh Traditional martial arts have many unique characteristics, bearing a particular nuance in the treasure of Vietnamese martial arts. In Binh Dinh Traditional Martial Arts, in addition to the Forms exercises that use strength and techniques in combat, there are also Forms exercises to serve the arts, performances, and Forms for the preservation and promotion of common health - the soft martial arts

preservation exercises, training both Mind - Body. In health preservation Form, there are many exercises with different training purposes as well as different levels of lightness, difficulty and simplicity. This study aims to: Assess the suitability of some Binh Dinh traditional martial arts exercises for the health of the elderly.

## RESEARCH METHODS

The research process uses research methods including: Interview method; Progressive research method and statistical mathematics method.

In progressive research method: Subjects do exercises one by one, observe changes in pulse, blood pressure, and respiratory frequencies to consider the burden of the exercise. Research indicators: pulse frequency (F), systolic blood pressure (BP), diastolic blood pressure, respiratory frequency, measured by regular method. These indicators are taken at the time before and during the exercising process.

Experimental subjects: including 24 active elderly people at the Nguyen Van Cu Ward club, Quy Nhon City, aged 55-65 (average  $59,78 \pm 1,56$ ) doing the exercises and interviewing 30 martial arts masters, teachers, coaches in Binh

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Dinh Traditional Martial Arts to take advise on choosing reasonable and scientific exercises suitable for the health of the elderly.

**RESULTS AND DISCUSSION**

We take 6 traditional Form exercises that are commonly used in Binh Dinh Traditional Martial Arts clubs, namely, Thai Son (referred to as exercise 1), Thien Su (referred to as exercise 2), Hung Ke Quyen (referred to as exercise 3), Loi Long Dao (referred to as

exercise 4), Tru Hon Kiem (referred to as exercise 5), Quyen Ngoc Tran (referred to as exercise 6). The six exercises above were one by one performed by 24 elderly people. We observed the changes in pulse frequency, blood pressure, and respiratory frequency to review the exercises' burden.

The process of observing changes in pulse and respiratory frequencies before and after performing exercises is presented in Table 1.

**Table 1. Variations of pulse and respiratory frequencies before and after performing the exercises (n = 24)**

Form exercise	Pulse frequency (times/minute)			Respiratory frequency (times/minute)		
	Still	After exercising	Changing level	Still	After exercising	Changing level
Exercise 1	72.7 ± 4.7	107.1±5.1	34.4	20.9±4.5	25.9±5.0	5.0
Exercise 2	73.0±4.8	104.6±5.0	31.6	20.8±4.4	26.6±5.7	5.8
Exercise 3	72.8±5.7	115.6±7.3	42.8	20.9±4.9	28.0±6.1	7.1
Exercise 4	72.6±4.8	101.5±5.3	28.9	20.9±4.8	26.7±5.2	5.8
Exercise 5	72.8±5.6	116.6±7.0	43.8	20.8±4.7	28.7±6.2	7.9
Exercise 6	72.8±4.4	100.7± 4.5	27.9	20.8±4.6	28.3±5.8	7.5

Through Table 1 it shows that: Before and after performing the exercises, the pulse frequency in exercises 3 and 5 has a high increase (42.8 and 43.8 times / minute) while in exercises 1, 2, 4, 6 the frequencies of the pulse moderately changed (ranging from 27 ÷ 33 times/minute). Respiratory frequency in exercises 3, 5 and 6 has a large degree of variation (7.1, 7.9 and 7.5 times/minute) while exercises 1, 2 and 4 have a lower variation degree of respiration frequency (5.5 and 5.8 times / minute).

Results of determining arterial pressure in subjects before and after performing exercises (see Table 2).

Table 2 shows that the diastolic blood pressure before and after performing exercises has no significant changes, the degree of variation fluctuates from 2–3mmHg. In contrast, systolic blood pressure has a large variation, in exercises 3 and 5, there is a bigger change in systolic blood pressure (25,5; 24,8 mmHg) than in other exercises (fluctuating from 20 ÷ 23 mmHg).

**Table 2. Variation in arterial pressure before and after performing exercises (n = 24)**

Form exercise	Systolic blood pressure (mmHg)			Diastolic blood pressure (mmHg)		
	Still	After exercising	Changing level	Still	After exercising	Changing level
Exercise 1	129.8±19.8	152.6±23.8	22.8	86.0±11.2	85.8±12.5	1.8
Exercise 2	129.7±17.2	151.6±23.9	21.9	85.9±12.3	88.0±14.2	2.1
Exercise 3	130.1±18.3	155.6±24.0	25.5	86.5±10.0	87.3±13.9	0.8
Exercise 4	128.9±19.1	149.0±25.5	20.1	85.2±12.8	86.7±14.1	1.5
Exercise 5	129.2±20.1	154.0±23.2	24.8	85.1±13.2	85.8±15.7	0.7
Exercise 6	128.7±21.8	151.6±24.6	22.9	86.1±12.8	87.0±14.6	0.9

## ARTICLES

When carrying out physical burden, functions in the body must be mobilized in response to an increase in the body's oxygen demand, in which cardiovascular and respiratory functions play a key role.

In the field of physical training and sports for strengthening and improving health, the intensity and duration of the exercises depend on the age and functional state of the body, especially the functional state of the cardiovascular system.

In order for the exercises to be safe and effective, it is necessary to determine a reasonable amount of exercise intensity, which is determined based on the pulse frequency or the amount of oxygen absorbed in the movement compared to the maximum pulse frequency or the maximum amount of oxygen consumed, these two quantities are highly correlated.

For the elderly participating in exercising, the recommended reasonable exercise pulse frequency should not exceed 70% of  $F_{max}$  ( $220 - \text{age}$ ). Therefore, exercises with pulse frequencies after practicing of more than 112 times per minute are considered to be overwhelming. Research results show that: When practicing exercises 3 and 5, the heart frequency increased (115.4 and 116.6 times/minute), exceeding 70% of  $F_{max}$ , the remaining exercises increased moderately <



**Vietnam has a diverse system of traditional martial arts suitable for many ages**

(Image source: <https://thethao.thanhvien.vn/>)

70%  $F_{max}$ . The indicators of blood pressure and respiratory frequency also tend to change similarly. Thus, through observing changes in blood pressure, pulse and respiratory frequencies, we find that exercises 1, 2 and 4 are more suitable for the elderly's health than exercises 3 and 5.

In the mass sport movement, in addition to the intensity and amount of exercises that must be reasonable, the exercises must also be attractive, interesting for the practitioners and easy to perform. To assess the appropriateness of the exercises, we conducted the subjective feeling interviews of the subjects when performing the experimental exercises. Interview results are presented in Table 3.

According to Table 3, the most common

**Table 3. Suitability of exercises through interviewing practitioners (n = 24)**

Questioning contents		Answer results (number of people/%)					
		Exercise 1	Exercise 2	Exercise 3	Exercise 4	Exercise 5	Exercise 6
Which exercises do you like	$m_i$	23	20	8	18	6	3
	%	95.83	83.33	33.33	75.00	25.00	12.50
To you, which exercises are more suitable for your health	$m_i$	24	23	11	21	5	7
	%	100	95.83	45.83	87.50	20.83	29.16
Which exercises do you feel are easy to do	$m_i$	21	22	13	19	10	0
	%	87.50	91.66	54.16	79.16	41.66	0
General	%	94.44	90.27	44.44	80.55	29.16	13.88

**Table 4. Suitability of exercises through interviews with martial arts masters, physical education and sports teachers (n = 30)**

Questioning contents		Answer results (Number of people/%)					
		Exercise 1	Exercise 2	Exercise 3	Exercise 4	Exercise 5	Exercise 6
To you, which exercises are suitable for the elderly's health	m <sub>i</sub>	28	29	13	25	6	8
	%	93.33	96.66	43.33	83.33	20.00	26.66
Which exercises are easy for learners to comprehend?	m <sub>i</sub>	30	30	11	26	13	2
	%	100	100	36.66	86.66	43.33	6.66
In reality, which exercises do you usually teach for the elderly (or if allowed to choose)	m <sub>i</sub>	28	28	14	23	8	6
	%	93.33	93.3	46.66	76.66	26.66	20.00
General	%	95.55	96.66	42.22	82.22	30.00	17.77

**Table 5. Evaluation of the suitability of indicators in 6 levels**

Research indicators	Exercise 1	Exercise 2	Exercise 3	Exercise 4	Exercise 5	Exercise 6
Heart frequency variation	4	3	5	2	6	1
Respiratory frequency variation	1	2	4	3	5	6
Systolic blood pressure variation	1	2	5	3	6	4
Interview practicers	1	2	4	3	5	6
Interview officers	2	1	4	3	5	6
Total priority level	9	10	22	14	27	23
Average priority level	1.8	2.0	4.4	2.8	5.4	4.6

opinions of the research subjects is exercise 1 (94.44%), exercise 2 (90.27%), exercise 4 (80.55%), lower is exercises 3 (44.44%), exercise 5 (29.16%) and the lowest is exercise 6 (13.88%).

In addition, we also conducted interviews with cadres and masters at traditional martial arts clubs in Binh Dinh and some teachers and coaches in Binh Dinh traditional martial arts about the suitability of the experimental practice exercises with the elderly. Interview results are presented in Table 4.

Table 4 shows that, in general the evaluation opinions of masters, cadres, teachers, and coaches, exercise 2 has the highest approval of 96.66%, followed by exercise 1 (95.55%) and exercise 4 (82.22%), all other exercises are less than 50%.

Based on the results obtained, we evaluate the suitability of each indicator according to the priority level from 1 to 6 of the exercises. The results are shown in Table 5.

Table 5 shows that exercises 1, 2 and 4 have the first priority (1.8; 2.0 and 2.8), and exercises 3, 5 and 6 have the following priorities ( 4.4; 5.4 and 4.6).

Thus, through Tables 3 and 4 shows that the majority of interview subjects rated exercises 1,2 and 4 as more suitable for the elderly according to the evaluation criteria of attractiveness, excitement and easy to perform. Particularly, exercise 6 was rated the lowest, only 13.88% and 17.77% of the interview subjects selected it.

The selection of exercises 1,2 and 4 is also evidenced by the summary results (Table 5) of



**With many unique martial styles, Thai Binh traditional martial arts attracts the participation of numerous learners (Image source: <http://ajcnews.net>)**

the suitability of physiological burden affecting the body through variations of some functional indicators (intensity and amount of exercise), attractiveness, excitement... for the practitioners.

Based on the research results, there are 3 exercises that need to be taken care of by the Binh Dinh traditional martial arts, namely, "Thien Su", "Thai Son" and "Hung Ke Quyen" have many advantages for the health of the elderly. These exercises can be widely deployed in health preservation clubs to contribute to improving and maintaining health for the elderly and moreover, can overcome and alleviate some symptoms of disease in the elderly.

### **CONCLUSION**

Among the 6 health preservation Form exercises in Binh Dinh traditional martial arts, 3 exercises were selected with the amount and intensity of exercises and difficulty suitable for the health of the elderly, such as Hung Ke Quyen, Thien Su, Thai Son. When performing these exercises, the pulse frequency of the subjects does not exceed 70% of the maximum pulse frequency (<112 times / minute), the pulse before and after exercising difference is 30-35 times / minute, respiratory frequency increases 5-7 times / minute. Through surveys and interviews with practitioners and teachers,

martial arts masters, they all consider that these exercises are suitable, simple to practice and easy to teach with the approval rate of 90 - 95% that they are suitable for the form of training to preserve health for the elderly.

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