

## EVALUATION OF SELECTED ASPECTS OF THE COORDINATION ABILITIES OF INDIVIDUALS PRACTICING VO QUYEN MARTIAL ART

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### 1. Introduction

A balance is defined as an ability of a human body to maintain a steady vertical position. The balance studies are difficult to evaluate, since the tests used in medicine show only a partial image of the analyzed coordination abilities [1, 2, 3].

The progress of technology and civilization, development of sports and other factors contribute to an increase in interest in the coordination abilities and focus on the nature of human activities including correct orientation, quick reaction to different signals, maintaining balance in static and dynamic conditions and rational adaptation of motor activities to changing conditions and situations.

The study tests both balance and coordination of individuals practicing Vietnamese martial art Vo-Quyén and compares the results with the results for non-practicing individuals included in a control group.

### 2. Material and Method

The study measures the level of motor coordination among 30 selected individuals. Vo-Quyén is a relatively unpopular martial art with only five Vo-Quyén martial art schools in Poland, including one Vo-Quyén martial art school near our university where the martial art is practiced by 15 individuals (TG group) aged 18-35 (3 women and 12 men) for 1 to 15 years. The control group NTG includes 15 individuals (3 women and 12 men) at the same age not practicing any sport or involved in any regular sports activities.

#### 2.1 Test method

The following tests were carried out:

I - Ditrich bar reaction time test. The person sits on a chair facing the backrest. During the test, the person grabs the bar falling through the opening between the thumb and the pointing finger. The reaction time is evaluated based on the height at which the bar was grabbed. Five tests were carried out for each individual, and two extreme results were rejected. The lower the value the shorter the reaction time.

II - Spatial and temporal orientation test. During the test, a blindfolded person tries to get to the middle of the circle. The person decides whether the target is reached and raises the right hand. The distance between the person's feet and the centre of the circle is measured. The test was carried out five times. The result is an average for five tests. The lower the result, the better the spatial and temporal orientation.

III- Motion adaptation capability test. During the test, the person takes six steps - three steps forward and three steps back. The longest possible steps are taken. The test result is a so called adaptation capability index expressed in centimeters. It is defined as a difference in the length of steps taken forwards and back. The lower the index the higher the adaptation capability.

Each test can be easily carried out in a standard gym and does not require any specialist instruments. The level of task complexity was selected to enable any person under test to complete the tasks given.

### 3. Results

In table 1 shows the results for each test for both groups.

Test	Group		Difference
	TG	NTG	
I [cm]	10,25	19,93	9,68
II [cm]	53,33	74,13	20,8
III [cm]	10,54	26,14	15,6
TG – training group			
NTG – control group			

**Tab. 1.** Test results for each test for both groups.

### 4. Discussion

The tests show that the individuals practicing sports achieve better results in balance and coordination abilities compared to the individuals not practicing any sports. Multiple studies show that the balance and coordination abilities are affected by the physical activity. The exercises improve muscular strength and further develop the abilities.

An analysis of the balance results implies that it is an essential ability for the martial arts. Without proper balance, the competitors are not able to maintain steady position or complete complex exercises. This ability, along with the spatial-temporal orientation is improved by martial art forms and exercises.

The tests may be used as a tool to select future candidates for practicing the martial arts, since they require a specific level of all coordination abilities relevant for the martial arts. The tests carried out by the authors may also be extended in the future by comparing the motor abilities of individuals practicing various sports using different and more detailed methods.

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### References

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