

EFFECTS OF MODEL KATE (HEI AN SHO DAN) ON TRANSFORMATION PROCESSES OF FUNCTIONAL ABILITY KARATE

UDC: 796.853.26:572.087.1-057.874

(Research note)

Rifat Mujanović, Izet Kahrović, and Miloš Hadži Vidaković

*State University of Novi Pazar,
Study program Sport and Physical Education,
Department of Bio-medical Sciences, Novi Pazar, Serbia*

Abstract

Sample consisted of 32 elementary schools in Novi Pazar, aged 11 and 12 years, involved in regular physical education and extra physical training in karate. The subject of this study was to investigate the model Kate (hei an sho day), the functional abilities of pupils in primary schools covered by the additional physical training in karate. The research problem has been designed to examine whether practice kata in the final since the initial measure contributes to statistically significant differences in functional abilities. The aim of the investigation is to determine the effects of model Kate motor to change the functional abilities of karate. Measuring instruments that we use are: resting heart rate, pulse rate after the load, the vital lung capacity. Processing computer program "Statistica" 8.0 for Windows to calculate the parameters: descriptive statistical parameters, discrimination measurements (skewness and kurtosis), Student t-test, and canonical discriminant analysis. The results showed that under influence of model Kate (hei an sho day) on the transformation processes of functional ability there was a statistically significant change in functional abilities of the subjects in the final since the initial measure.

Keywords: *students, physical education, measuring instruments, initial measurement, final measurements, Canonical discriminant analysis*

INTRODUCTION

One of the main conditions of success in sport is that children and adults have the necessary inherited and acquired anthropological characteristics and a certain level of functional ability of an organ, organic system or body as a whole. The value and capacity of these abilities significantly facilitate and improve the system of selecting candidates for a sport, as well as planning, programming and controlling the impact of the training process. Research the efficiency of certain models of motor training, and their impact on the efficiency of the sport, represents an issue of vital importance for the possibility of forming a rational procedure in the optimal orientation and selection, efficient monitoring of the sports form, and proper

planning and programming training to better achievements.

Proceeding from this, current research practices studied the association of certain dimensions of the anthropological status and size of their impact on success in developing the model Kate (Hei an shodan) in the population above grade elementary school students. However, there are still insufficiently defined effects of these categories on functional abilities of younger age population.

The research subject is to study the functional abilities of youth karate, students of elementary schools from the city Novi Pazar, ages 11 and 12 years, involved in regular teaching of physical education and experimental program of model kate (Hei an sho dan).

Problem of this research conditions to be answered the next question:

- Whether the results of practicing kata in the final, since the initial measure, contribute to statistically significant differences in functional abilities of subjects.

Based on case studies and problems, the main aim of research is to establish the effects of model Kate (Hei an sho dan) to changes in functional abilities of karate, within the elementary school students.

To fulfill the objective set is necessary to implement the following tasks:

- Determine the initial state of the functional abilities of students;
- Implement an experimental program to respondents;
- Determine the final state of the functional abilities of students;
- Identify changes in functional abilities on the final measurement compared to the initial measurement in students.

Main hypothesis has been determined based on the research objective, problem and the study aim.

H - Statistically significant changes are expected as result of functional capabilities of the final measurement compared to the initial state in the subjects.

METHODS

The sample of subjects

The sample of subjects comprised 32 students of elementary schools in Novi Pazar, aged 11 and 12 years, involved in regular physical education. The subjects were participants in the realization of experimental practice of model kata.

The sample of measuring instruments

1. Resting (FPUM)
2. Pulse rate after load (FPPO)
3. Vital lung capacity (FVKPL)

Experimental program

In addition to regular physical education, subjects were covered by an extra tuition for the training model Kate (HEI AN SHO DAN) with the continuous development of functional ability during 8 weeks period. Application of motor training was individualized based on the abilities and characteristics of respondents and implemented a differentiated within

“homogeneous groups”. At the beginning of the experiment in the main part of the lesson the first element was to increase a motor skill which has to be achieved after certain strength of body crossed the exercise element kata. The additional training elements to continue with within the experimental group was of a classic structure: introduction, 5 minute of preparations for warming; preparatory part, 10 minutes of free exercise, the main part, 30 minutes of exercise, the final part, 5 minutes to encourage recovery, settling all functions subjects using the body which means less dynamic and less intense (relaxing activities). Toward increasing of the functional capabilities of the experimental program, it was consisted of: running in the nature of medium pace, cross country skiing, jogging with short acceleration and running interval method (with 70-80% of maximum intensity).

Methods of data processing

To determine the changes in the results of functional capacity at the final measurement compared to the initial state of the subjects, “Statistica” 8.0 for Windows program was used to calculate following elements: descriptive statistical parameters, discrimination of measurements (skewnees and kurtosis), Student t-test and Canonical discriminant analysis .

RESULTS AND DISCUSSION

The analysis of table 1, which presents the main statistical parameters of functional capacity, one can say that comparing the results of standard deviation (SD) with a range of maximum (Max.) and minimum (Min) results can be concluded as normal sensitivity of selected tests. In the intervals of the minimum (Min) and maximum (Max) results are at least five standard deviation (SD), indicating a significant dispersion, i.e. sensitivity of functional tests. Value skewness has shown that within none of the measures has found any significant deviations of results from the normal distribution, considering the fact that the value does not exceed 1:00 in any of the tests. Kurtosis results are below the normal value of distribution 2.75, which makes the distribution platykurtic or fuzzy.

The analysis of Table 2 which shows the main statistical parameters of functional capacity may be concluded that by comparing the results of standard deviation (SD) with a range of

Table 1. Basic statistical parameters for the assessment of functional abilities in the initial measurement

Variables	N	Mean	Min.	Max.	Std. Dev.	St. Error	Skewn.	Kurtos.
FPUM	32	75.94	64.00	89.00	5.16	0.911	-0.405	1.233
FPPO	32	163.20	148.15	171.00	0.60	0.106	-0.177	1.048
FVKPL	32	2382.20	2105.40	2870.20	650.06	114.916	-0.172	-0.203

maximum (Max.) and minimum (Min) results can be concluded normal sensitivity of selected tests. In the intervals of the minimum (Min)

and maximum (Max) results are at least five standard deviation (SD), indicating a significant dispersion, i.e. sensitivity of functional tests.

Table 2. Basic statistical parameters of the functional abilities of the final measurement

Variables	N	Mean	Min.	Max.	Std. Dev.	St. Error	Skewn.	Kurtos.
FPUM	32	68.41	55.00	77.00	5.53	0.978	-0.918	0.475
FPPO	32	154.50	147.00	168.10	0.42	0.073	0.580	0.367
FVKPL	32	2430.00	2120.70	2890.90	522.67	92.396	-0.017	0.506

Value skewness show that none of the measures no found significant deviations of results from the normal distribution, considering the fact that the value does not exceed 1:00 in any of the test. Kurtosis results are below the normal value of 2.75 distribution, which makes the distribution platykurtic.

Analysis of differences between initial and final measurements investigated t-test

Table 3 contains the results of the T-test of functional capacity between the initial and final measurements of the subjects. After analyzing the results it is concluded that statistically significant, differences exist in all the tests of

functional abilities.

Differences between the initial and final state of the discriminant analysis

Discriminant analysis in this paper was used to determine whether there was found a statistically significant difference of results between initial and the final measurements, and then to determine which of the functional variables give the biggest contribution to the determined difference or discrimination. Discriminant analysis contains the following parameters: square of the coefficient of discrimination (Eugen value), the coefficient of canonical correlation (Canonical R), the value of Bertletov

Table 3. The significance of differences between arithmetic means of functional capabilities:

Variables	Mean (i)	Mean (f)	t-value	p
FPUM	75.94	68.41	5.63	.000
FPPO	163.20	154.50	3.31	.045
FVKPL	2382.20	2430.00	3.30	.048

Table 4. Significance of isolated discriminant function

Disc Func.	Eugenvalue	Canonical R	Wilks' Lambda	Chi-Sqr.	df	P-Level
0	.737	.65	.576	33.12	4	.000

test (Wilks' Lambda), the size Chi square test (Chi-Sqr), degrees of freedom (df) and symbol of error probability (P-Level) for rejecting the hypothesis that the real value of canonical correlation is zero.

Differences between quantitative effects of additional education within the initial and final state of physical education in the area of subject's functional abilities are shown in the tables: 4,5,6 and 7.

In table 4 represents one significant discriminant function of medium-high intensity (CR = 65%), which shows in which correlation is the data set on which basis the discriminative analysis of the obtained results was performed. The results of discriminative strength variables of functional abilities are shown in the Wilks' Lambda test (.576), indicating that the differences between initial and final measurements in the area of functional abilities of the experimental group are significant (P = .000), because of the high value size of the Chi square test (Chi-Sqr = 33.12).

Table 5. Factor structure of isolated discriminative function

Variable	Root 1
FPUM	-0.833
FPPO	-0.194
FVKPL	-0.044

Table 5 presents the structure of discriminant functions share variables of functional ability in the formation of significant discriminant functions. Presented group of centroids are the mean of the initial and final measurements. In order to test the efficiency of the model Kate (hei an sho dan) on the transformation processes of the functional abilities of karate measured by three tests of functional abilities, which are supposed to be good predictors of the area. The presented results shows that the largest contribution to discriminative function has the resting heart rate (FPUM -. 833).

Table 6. Centroids of measurements

Measurements	Root1
Initial	-.844
Final	.844

The result in Table 6 represents the discriminant function of centroids on the basis of all tests of functional abilities which is -. 844 and .844. Significance of shown centroids measurements which was tested by the significance of discriminant function shows that their distance (discrimination) is important.

Table 7 Classification (mean value of percentage of the groups themselves) from the canonical correlation coefficient which is CR = 65%.

Table 7 Classification matrix

Measurements	Initial	Final	Total
Initial	25	7	32
Final	7	25	32
Initial	78.12%	21.88%	100%
Final	21.88%	78.12%	100%

The obtained results of discriminant analysis in the final compared to initial measurement shows that under the influence of model Kate (hei an sho dan), there was significant changes in functional abilities of subjects.

CONCLUSION

The results of canonical discriminant functions show that in the final, compared to initial measurement, statistically significant changes occurred of the functional ability. Hypothesis H - (to be statistically significant change in results of functional capacity at the final measurement compared to the initial state of the respondents) is confirmed. The results of canonical discriminant functions show that in the final since the initial measure in subjects occurred functional ability statistical significant changes of (P-level = .000). The difference between the initial and final the measurements of the investigated T-test, after analysis of the

results, show a statistically significant difference in all tests of functional abilities.

REFERENCE

- Bratić, M. (2006). *Džudo* [Judo. In Serbian.] Niš: Fakultet fizičke kulture.
- Janković, I. (1998). Izbor testova funkcionalnih sposobnosti [Selecting the functional ability tests. In Serbian.] *Fizička kultura*, 52, 4-5.
- Medved, R., Medved, P. i Heimar, S. (1985). Volumen srca i neke antropološke karakteristike mladih sportista [Heart volume and some anthropometric characteristics of young athlete. In Croatian.] *Kineziologija*, 17(1), 5-13.
- Milošević, M., Jovanović, S., Ćirković, Z.(1993). Vremenski parametri osnovnih tehnika karatea u specifičnim zadacima napada [Time parameters of the basic karate techniques in specific attack tasks. In Serbian.] *Fizička kultura*, 4(3), 147-151.

ЕФЕКТИТЕ НА МОДЕЛОТ НА КАТИ (HEI AN SHO DAN) ВРЗ ТРАНСФОРМАЦИОНИТЕ ПРОЦЕСИ НА ФУНКЦИОНАЛНИТЕ СПОСОБНОСТИ КАЈ КАРАТИСТИТЕ

УДК: 796.853.26:572.087.1-057.874
(Исцрпљувачка белешка)

Рифат Мујановиќ, Изет Кахровиќ и Милош Хаџи Видаковиќ

*Државен универзитет во Нови Пазар,
Студиска програма за спорти и физичко воспитување,
Оддел за био-медицински науки, Нови Пазар,*

Апстракт

Примерокот на испитаниците беше сочинет од 32 ученици од основните училишта во Нови Пазар, на возраст од 11 и 12 години, опфатени со редовната настава по физичко воспитување, како и со дополнителна настава по физичко воспитување со содржини на карате. Проблемот на истражувањето беше конципиран да се испита дали вежбањето кати во финалното, во однос на иницијалното мерење, придонесува за статистички значајни разлики во функционалните способности на испитаниците. Целта на истражувањето беше да се утврди моделот на кати врз промените на функционалните способности на каратистите. Беа применети мерните инструменти: фреквенција на пулсот во мирување, фреквенција на пулсот по оптоварување и витален капацитет на белите дробови. Податоците од истражувањето се обработени со: основни дескриптивни статистички параметри, skewness, kurtosis, t-тест и каноничка дискриминативна анализа. Резултатите од истражувањето покажаа дека ефектите

на моделот на кати (Hei an sho dan) врз трансформирањето на функционалните способности, предизвикаа статистички значајни промени кај испитаниците во финалната состојба.

Клучни зборови: *ученици, физичко воспитување, мерни инструменти, иницијално мерење, финално мерење, каноничка дискриминативна анализа*

Corresponding:

Izet Kahrović

State University of Novi Pazar,

Study program Sport and Physical Education,

Department of Bio-medical Sciences,

Vuka Karadzica bb, 36300, Novi Pazar. Serbia

E-mail: kahrovic_novipazar@live.com