THE INFLUENCE OF KINESIOLOGIC ACTIVITIES ON THE STUDENTS ANTROPOLOGICA STATUS AT THE DEPARTMENT OF MARITIME STUDIES, UNIVERSITY OF ZADAR

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Abstract
The aim of the research was to determine the effect of training, and kinetic activity on the anthropological status of the students at the Department of Maritime of University of Zadar. Students are trained for three months, had a circuit training for the development of motor skills for two hours a week and also one hour of running. The results showed that there was a significant improvement of students anthropological status . Statistically significant (p> 0.05) changes were observed in the morphological characteristics of weight, body mass index, upper arm circumference and volume of the forearm. Also significant changes were found in the repetitive strength of arms tests, shoulder and torso, as well as the results of running the 3200m. Programmed kinesiology activities can have a significant impact on the anthropological status of students.

Keywords: kinesiology, anthropological status, students, seamans

Introduction

The maritime vocation is a specific activity because the seaman, regardless was he an mariner, engineer or a officer, is exposed to various risks that may occur on board. Risks can vary from those of business like deadlines, obligations and duties to those in health involving injuries, mental and physical effort and stress. The development of maritime affairs confronts the seaman to a increasingly complex tasks and duties that he has to meet. The higher level of complexity of tasks and duties inevitably brings increased risks. This study examined the morphological characteristics and motor and functional abilities of students. The following anthropometric and morphological measures - height and body weight, volumes or ranges of the upper arm, forearm, thigh, lower leg, waist and proportion of subcutaneous fat and muscle tissue. motor and mobile capabilities participate in solving motor movements and are responsible for the effectiveness of our movement. Motor abilities that are measured are explosive power, repetitive strength of arms and shoulders, repetitive strength of torso and flexibility. Functional capabilities include the ability range and stability control transport system, that is the ability to control and coordination function of organ systems, and the ability to release adequate amounts of energy in cells.

Moreover they allow the body maintaining homeostatic conditions and the operation of the specific functions of its individual parts (Findak, 2001). Functional ability endurance of students at Maritime Department was tested by running 3200 meters in the outside. As the majority of students of the Maritime Department will become seamans, of particular importance will be their health, for the successful performance of maritime activities, which require an exceptional technical and psychological and physical readiness to perform duties on board. The aim of this study was to determine the effect of kinetic activity on the anthropological status of students at the Maritime Department of the University, and the impact of exercise on their morphological, motor and functional characteristics.

Sample and methods

The sample consists of 34 subjects who were students of the Maritime Department of the University of Zadar, aged 20-25 years, of which 32 male and 2 female, male makes 89.12%, while the female makes 10.88% of the respondents. The study used 14 variables in two time spacing and height. Morphological variables: height, weight, body mass index, body fat percentage, percentage muscle mass, volume: upper arms, forearms, waist, upper legs, lower legs. Motor variables: flexibility, push-ups, bend the torso, long jump from the place and Functional variables: running 3200 meters.

Elective Course Sport and Health, (30 hours of lectures, 30 hours of exercises and 15 hours of seminars) was performed through three months in the summer semester. At a two-hour weekly exercise is applied circuit training. Circuit training is based on exercises for the development of motor skills, practiced most often in the 8 to 12 exercises through a certain period of time. After completing one round of exercise, the student takes a short break, and repeats the cycle. The number of repetitions as well as rest periods were different depending on the intensity. In addition to the exercises, students have also been running an hour a week according to individual programs based on the results of initial measurement.

Methods of data processing
T-test was used in this paper for the dependent sample. Data processing is done by Statistica statistic package for Windows Ver. 11.0

Results and discussion

To determine the differences in morphological variables t-test was used for dependent variables for which data are collected twice, at the beginning and at the end of the course. The results (Table 1) indicate that there is a change between the variables as a percentage of body fat, the percentage of muscle tissue, lower waist and upper leg and lower leg volume, but these changes were not statistically significant. Significant statistical difference was shown between these variables; weight, body mass index, upper arm circumference and volume of the forearm.

Table 1. T-test for morphological variables of students at Maritime Department

	Mean	Std.Dv.	N	Diff.	Std.Dv. Diff.	t	Df	p
Weight	81,48	11,00						
Weight 2	83,16	10,88	33,00	-1,68	1,94	-4,98	32,00	0,00*
Bm index	24,12	2,42						
Bm index 2	24,60	2,32	33,00	-0,48	0,58	-4,78	32,00	0,00*
%fat tissue	21,29	4,86						
%fat tissue 2	20,57	4,92	33,00	0,72	2,44	1,71	32,00	0,10*
% mascule	41,77	2,86						
% mascule 2	41,99	3,03	33,00	-0,22	1,32	-0,96	32,00	0,34
Upper arm girth	30,24	2,88						
Upper arm girth 2	31,22	2,73	23,00	-0,98	1,19	-3,94	22,00	0,00*
Scope of the forearm	27,91	2,14						
Scope of the forearm 2	28,43	2,27	23,00	-0,52	0,90	-2,79	22,00	0,01*
Waist	85,87	9,49						
Waist 2	85,89	8,09	23,00	-0,02	3,93	-0,03	22,00	0,98
Tight scope	55,50	4,64						
Tight scope 2	56,33	4,73	23,00	-0,83	2,83	-1,40	22,00	0,18
Shin scope	38,07	2,45						
Shin scope 2	38,35	2,39	23,00	-0,28	1,80	-0,75	22,00	0,46

Results of t-test between two variables of motor abilities (Table 2) indicate that it is statistically significant differences occurred with flexibility, repetitive strength of arms and shoulders and repetitive strength of the body, while variable jump (explosive strength test) was not revealed statistically significant changes. Improving the flexibility of students has come as a result of stretching and relaxation that have been an integral part of each workout. Results of tests repetitive strength of arms and shoulders (push up 2) and angle (abs 2) measured after thirty hours of practice, were also part of the final evaluation of the course so that the students were motivated to work to develop these skills. Results of the test standing long jump were not statistically significant because of the explosive power mainly conditioned by genetic and in this age of the respondents can hardly be significantly improved by training. The increase in total body weight obviously is conditioned largely by the increasing of the volume of the upper arm and forearm, as well as the growth of the mass of the upper body .

Table 2. T-test for motor variables students Maritime Department

	Mean	Std.Dv.	N	Diff.	Std.Dv. Diff.	t	Df	p
Flex	45,13	7,61						
Flex 2	50,94	5,25	16,00	-5,81	3,49	-6,67	15,00	0,00
Push	41,33	15,33						
Push 2	53,41	17,85	27,00	-12,07	9,99	-6,28	26,00	0,00
Abs	70,15	20,51						
Abs 2	82,27	22,74	26,00	-12,12	12,05	-5,13	25,00	0,00
Standing long jump	228,74	24,38						
Standing long jump 2	220,91	56,10	19,00	7,83	59,81	0,57	18,00	0,58

Results of t-test (Table 3) indicate statistically significant changes in the results of the test for functional capacity (3200m2). Quarterly training brought an average improvement of results for one minute and 27 seconds. Noticeable improvement is visible for the students who had lower values of the test on the first measurement. Results of running were also evaluated and made assessment of the course which was an additional motivation for training.

Table 3. T-test for functional variables of students at Maritime Department

Var	Mean	Std.Dv.	N	Diff.	Std.Dv. Diff.	t	df	p
3200m	15,89	2,21						
3200m 2	14,62	1,57	19,00	1,27	1,57	3,51	18,00	0,00*

Statistically significant differences at the level $p < 0.05$

Conclusion

Students at the Maritime Department of the University in Zadar chose a specific vocation, which demands great responsibility and psychophysical fitness. The purpose of the study is to understand the impact of training, and kinesiology activities on the anthropological status of students. Students have been practicing for three months, two hours a week were practicing the development of motor skills and an hour a week they were running. Research has shown that there have been significant improvements in the anthropological

status of students. In the morphological part, there was a statistically significant change in body weight, which increased and thus the body mass index, also both increased volumes and upper arm and forearm while the percentage of body fat is reduced. The percentage of muscle mass was not statistically significantly increased, however, the body weight increase and the volume of the upper arm and forearm, and the reduction of fatty tissue indicating increased muscle mass, and probably in the upper body. In the motor part, there were also a statistically significant positive changes in the assessment of flexibility and repetitive strength of arms and shoulders and repetitive strength of the body. Significant changes did not occur in the test to assess the explosive strength. Significant differences were present in the test for the assessment of functional capacity. Tests for the assessment of repetitive strength (push-up, abs) and test for assessing functional abilities are also part of the final grade in the electoral college of Sport and Health as students were additionally motivated to work in class and outside of class on individual training. Students due to mandatory lectures spend most of the day sitting in the classroom, a good part of the remaining time they spend sitting in front of screens of mobile phones and computers. Such a lifestyle can have a bad influence on anthropological and ultimately on the health status of students. By training students enhance their health and quality of life, which directly affects the maintenance of high levels of work ability.

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