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THE LEVEL OF PHYSICAL FITNESS COMPETENCE IN STUDENTS OF THE FACULTY OF TEACHER EDUCATION

INTRODUCTION

Young children observe, learn, practise, and develop fundamental movement patterns. In the first grade, this basis continues to be established and reinforced to facilitate motor skill acquisition which gives children capacity for successful levels of performance as they mature. Children learn how to improve their locomotor (travelling actions), nonlocomotor (movement in place) and manipulative (object handling) skills which they acquired in preschool age. They begin to understand how being physically active contributes to their health, social opportunities and contributes to the quality of life, and how physical activity affects their body (heart rate, muscles strength, cardio respiratory endurance, flexibility, physical fitness) (Castelli, Williams, 2007). All this knowledge is presented to children by their physical education teacher (Manross, Templeton, 1997).

The goal of the Physical Education curriculum is to develop individuals who are proficient at movement and who can use physical activity to (RH MZOŠ, 2006):

- Maintain or develop fitness
- Develop skills for sport and recreation
- Use movement for self-expression, enjoyment, challenge, and social interaction
- Be involved in lifelong physical activity, etc.

To achieve that goal, physical education teachers should have the knowledge and skills necessary to demonstrate competent movement performance and health enhancing fitness (Zeigler, 2003). They need to demonstrate personal competence in motor skill performance for a variety of physical activities and movement patterns, and achieve and maintain health-related physical fitness: cardio respiratory endurance, motor abilities - strength, flexibility, coordination, speed (National Association for Sport and Physical Education, 2004). For those reasons, the students who graduate from the Faculty of Teacher Education should have acquired experience of physical education that is essential for elementary school children, and should be able to demonstrate various skills that are planned in the curriculum (RH MZOŠ, 2006):

- (1) fundamental stability and manipulative skills;
- (2) locomotor and non-locomotor skills;
- (3) rhythm and dance movement skills;
- (4) aerobic endurance;
- (5) body composition;
- (6) flexibility;
- (7) muscular strength and endurance, etc.

These numerous facts call for the need to investigate the level of physical fitness competence in elementary school physical education teachers. So, the aim of this research is to determine the level of motor abilities in students of the Faculty of Teacher Education and to compare them with Croatian National Standards established on fourth grade secondary school children.

METHODS

For the purpose of this study, the sample consisted of 167 female students of the Faculty of Teacher Education in Zagreb, aged 20 + 1. The research was conducted in academic year 2009/2010. The sample of variables consisted of six standard tests for establishing the motor abilities - polygon backwards (MPN), sit and reach (MPR), hand tapping (MTR15), flexed arm hang (MIV), standing long jump (MSD), sit-ups (MPT) and Croatian National Standards for fourth grade secondary school children (Findak et al., 1996). The obtained data were processed by descriptive statistics (Valid N, Mean, Minimum, Maximum, Range, Std. Dev) and for establishing the difference between students' motor abilities and standards, the ANOVA was used.

RESULTS

Based on the collected data and the descriptive statistics shown in Table 1, it can be seen that the greatest range of results, and thus the largest standard deviation from the Mean, is for the test standing long jump, followed by sit and reach, hand tapping and trunk bend. Comparing the Mean of students and National standards, it is evidently that the students achieve good results on polygon backward, hand tapping and sit-ups tests, but they attain poor results on sit and reach, standing long jump and flexed arm hang tests.

Table 1. Descriptive statistics for students

	Valid N	Mean	Minimum	Maximum	Range	Std. Dev.	Standards
MPN	167,00	12,43	7,49	25,50	18,01	2,51	13,45
MPR	167,00	73,38	45,00	103,00	58,00	11,45	78,00
MTR15	167,00	44,72	26,00	77,00	51,00	13,69	37,50
MSD	167,00	167,28	128,00	235,00	107,00	17,87	194,50
MIV	167,00	16,46	0,00	58,21	58,21	13,70	38,50
MPT	167,00	41,40	15,00	75,00	60,00	9,33	41,00

In accordance with the objective of this study, the results of ANOVA analyses are shown in Table 2. Based on the obtained results, it can be concluded that there is a statistically significant difference between the students of the Faculty of Teacher Education and National standards for fourth grade secondary school children on polygon backward, sit and reach, hand standing long jump and flexed arm hang tests.

Table 2. ANOVA

	SS	Df	MS	SS	Df	MS		
	Effect	Effect	Effect	Error	Error	Error	F	P
MPN	87,51	1,00	87,51	1042,63	332,00	3,14	27,86	0,00
MPR	1779,76	1,00	1779,76	21761,47	332,00	65,55	27,15	0,00
MTR15	4358,21	1,00	4358,21	31107,33	332,00	93,70	46,51	0,00
MSD	61888,21	1,00	61888,21	53031,33	332,00	159,73	387,45	0,00
MIV	40560,21	1,00	40560,21	31140,74	332,00	93,80	432,42	0,00
MPT	13,04	1,00	13,04	14455,92	332,00	43,54	0,30	0,58

DISCUSSION

From the obtained results it can be concluded that the students have, according to National standards, well developed coordination and frequency of movement (Figure 1 and 3). Consequently, they have the competence to perform units and themes from Physical education curriculum that are based on coordination: walking and running with changing direction of movement, rolling, crawling and wriggling in different ways, games, hand and leg manipulation with the ball, dancing with changing directions and tasks; as well as those based on frequency of movement: throwing and catching, quickly run across an obstacle, all types of games etc.

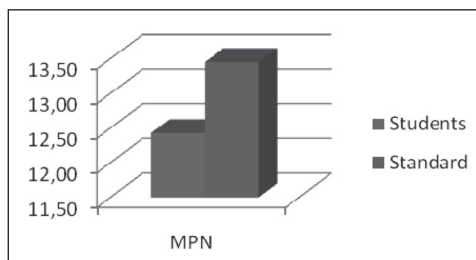


Figure 1. Polygon backward

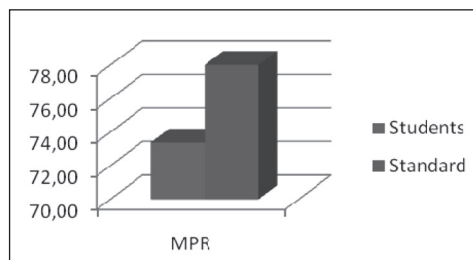


Figure 2. Sit and reach

However, the students achieved poor results in flexibility, explosive and static strength (Figure 2, 4 and 5). According to these results, it can be assumed that they are not entirely competent to execute tasks that are based on those motor abilities, such as leaps and rhythmic jumps, balance on the ground, gallop, high jump, one and two leg jumps and hops, throwing medicine ball, hangs and strongholds, pulling and pushing.

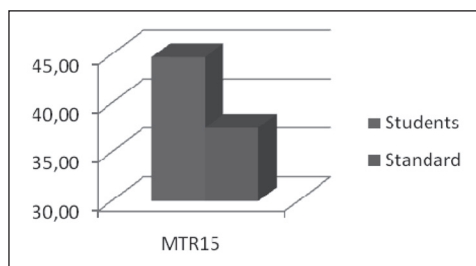


Figure 3. Hand tapping

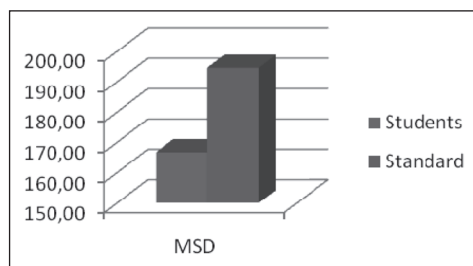


Figure 4. Standing long jump

The only variable, which showed no statistically significant difference, between the students and National standards, is sit-ups (Figure 6.). Sit-ups is a standard test for evaluating repetitive strength, so it can be concluded that the students are competent to provide tasks that include this motor ability.

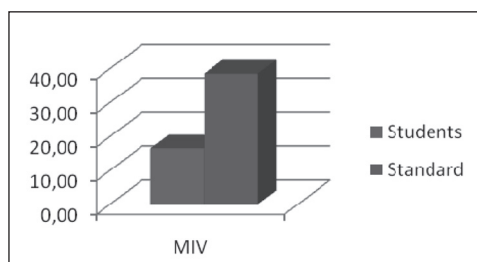


Figure 5. Flexed arm hang

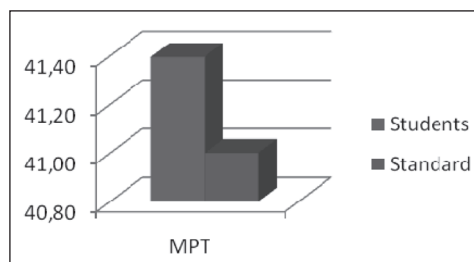


Figure 6. Sit-ups

Up to date, female students' motor abilities were studied by many authors. The results of their studies are shown in Table 3.

Table 3. Results of studies by different authors

Name of authors	Year	MPN	MPR	MTR15	MSD	MIV	MPT
Tomljenović et al	2007.	11,54	63,21	37,42	186,3	34,42	48,50
		2,17	15,76	3,62	31,49	33,71	8,67
Mesarić, Boutlas	2005.	13,37	69,18	35,66	169,3	20,32	40,09
		2,21	9,36	3,74	14,18	13,13	3,93
Srhoj et al	2006.	12,14	65,87	34,42	173,8	29,13	22,33
		2,12	11,82	4,71	20,43	19,64	4,29
Horvat, Delija	1998.	11,86	70,29	/	177,1	23,18	45,45
		2,11	11,25		46,02	14,22	21,87
Jeras, Kondrič	2002.	11,59	/	48,16	182,4	31,32	45,25
		26,06		5,04	17,13	16,74	10,49

(upper value in every cell is mean value and lower value is standard deviation)

CONCLUSION

The aim of this study was to determine the level of motor abilities in students of the Faculty of Teacher Education and to compare them with Croatian National Standards established on fourth grade secondary school children. Motor abilities of 167 female students of the Faculty of Teacher Education in Zagreb, aged 20 + 1 were measured on 6 motor tests. According to the obtained results, it can be concluded that the students are competent to perform tasks that include coordination, frequency of movement and repetitive strength, but less competent in performing those tasks that contain flexibility, explosive and static strength. With the aim to have quality teachers at every level of knowledge transfer, students' awareness of the importance of their

competences in future profession should be one of the priorities while studying at the Faculty of Teacher Education.

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ABSTRACT

The aim of this research is to determine the difference between the level of motor abilities in students of the Faculty of Teacher Education and Croatian National Standards established on fourth grade secondary school children. The sample consisted of 167 female students of the Faculty of Teacher Education in Zagreb, aged 20 + 1. The sample of variables consisted of six standard tests for establishing the motor abilities and Croatian National Standards. The obtained data were processed by descriptive statistics and for establishing the difference between students' motor abilities and standards, the ANOVA was used. Based on the obtained results, it can be concluded that the students are competent to perform tasks set by Physical education curriculum that include coordination, frequency of movement and repetitive strength, but less competent in performing the tasks containing flexibility, explosive and static strength.

Key words: *motor abilities, National Standards, students, physical education, curriculum*

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