

INTEGRATION OF JUDO ELEMENTS INTO OFFICIAL PLANS AND PROGRAMS AT POLICE COLLEGE IN ZAGREB AND THEIR EFFICIENCY - TRANSITIVE SCREENING

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INTRODUCTION

Martial arts program directed toward students who attend Police College, i.e. police officers is specific, comprised of many martial arts techniques (karate, judo, aikido), (Kosanović, 1988; Jozić, 2000; Jozić, Zečić, & Hrženjak, 2011; Lucić & Gržeta, 2007; Sertić & Segedi, 2013), (Table 1). Elements of judo training with its own diverse structure, composed of offensive and defensive techniques either in a standing position or on the ground, are particularly favorable for improving and enhancing levels of students' psychophysical preparedness, police officers as well. Judo as a modern martial sport has its unique history and philosophy, it is more than training body, since mind, spirit, character, moral and ethics are being continuously trained (Lascau & Callan, 2013). Elements of judo training, like posture, leverage, choking, various movement, grappling and holding techniques, defense against armed or unarmed assailant, influence positively on a level of students' situational activities (Lucić & Gržeta, 2007; Sertić & Segedi 2013). Official program currently in force at Police College requires high level of physical readiness, team cohesion, team proceeding and fighting skills. These factors are indispensable during utilization of physical strength for rough conditions in which tasks are executed, therefore continuous inter-disciplined training is required (Jozic, Mendeš, Zidar, Lauš, Jozić, & Sertić, 2019).

Selection of elements for development of all needed abilities, working methods, distribution of elements, choice of methodological organizational form of work, site of work in various cycles of sport preparation of tactical employees will depend on specificity of police work and educational aims for Police College students. Students' success and efficiency during their educational years and later in practice are determined by level and structure of various motor abilities, anthropometric characteristics and fighting skills (Jozic, 2003; Jozić & Zečić, 2012). Police college program for students includes, techniques, tactics of police proceedings, arrest and self-defense skills (Renden, Nieuwenhys, Savelsbergh, & Oudejans, 2016). Presented arrest and self-defense training elements should create prerequisites for risk identification in practice, in order to manage risk which can come up in various police proceedings.

The main objective of this paper is to determine efficiency of four-month-long special physical preparation training of students attending Police College programs.

METHODS

Participants

This research was conducted on a random sample consisted of twenty students attending police college on a part-time basis. Data collected during test sessions will be used in planning effective training programs for shock and ordinary micro-cycle activities.

Sample of variables

In research of efficiency and training treatments, all subjects were tested applying a set of eight variables evaluating motor abilities. Following tests were used: test for evaluation of flexibility (SAR), standing long jump (LJ), pull ups (PLU), push ups in 1 minutes (PU), sit ups in 2 minutes (SU 2 min), bench press at 70% of body weight (Bench 70%), squats in 60 seconds (SQ 1min), double-leg vertical jump (VJ) and two anthropological measures, as well (Mišigoj-Duraković, 2008), body height and body weight (Metikoš et al., 1989.; Jozić, 2003, Jozić, 2004; Jukić et al., 2008).

Description of specifically targeted programs for specialized training

Part-time students are trained in accordance with official programs composed of judo elements, police self-defense and trainings that were dominated by modern methodical organizational forms of work, like stage training, circuit methodical organizational form of work, contemporary methodical organization form of work using free weights (which creates work-out of greater intensity), training simulators, kettlebells, all commensurate with police officers' individual characteristics.

Program is based on selection of elements for improvement of adaptive and specific fitness abilities of police officers. It means that on special physical preparation trainings intensity prevail over extensity. In order to improve maximal strength we use loads at 60-100% for 1RM. Domineering type of training in police force, as well as in army is based on a rule „train the way you fight”, meaning that training is specific and situationally characterized, (Šalaj & Šalaj, 2011). During special physical preparation the emphasis is on team proceedings, speed of performing specific police self-defense techniques, elements of judo, creation of specific tactics for team, unit and platoon proceedings, altogether with the aim of increasing level of intrinsic motivation, controlling anger and emotional tension occurred during situational proceedings in a practice, thus increasing students' adaptive skills.

Table 1. Elements of overall program for students attending Police College in Zagreb

No	Training themes: RUNNING AND ELEMENTS OF FITNESS	Frequency
1	40-m dash running	15
2	100-m dash running	10
3	Intermitted running up to 2400 m	6
4	Intermitted running up to 3200 m	4
5	Intermitted running up to 8000	3
6	Pull ups 1-3 min	20
7	One-legged hop	8
8	Parallel bar dips	15
9	Kettlebell	10
10	Sit ups	5
11	Rope climbing with legs and hands techniques	6
12	Infantry polygon with obstacles	8
13	Pentathlon elements	12

14	„Sparring” in standing position and on the ground (Randori; Combat and fighting practice, closely mimics competitive situational elements)	15
15	Joystick grip pull ups (Galvao and Howell, 2010)	18

	Training themes: JUDO BREAKFALLS	
16	Front break falls	10
17	Back break falls (*)	10
18	One-sided break falls (*) (*) pre-exercises for judo break fall techniques: supine position, sitting, kneeling and squatting position	10
19	Judo break falls with lifting and standing in stance; squat&elbow sprawls, front break fall (Zempo Tenkai), left-sided and right-sided break falls (Yoko Ukemi), back break fall (Ushiro Ukemi)	15

	Training themes: JUDO THROWING TECHNIQUES BASICS OF COMBAT (judo)	
20	Judo, a foot technique throw – o soto gari (large outer reap), deashi harai (body drop)	10
21	Judo, hand technique throw – tai otoshi (body drop)	10
22	Judo, a hip technique throw; Koshi – guruma (hip wheel)	10

	Training themes: SELF-DEFENSE ELEMENTS SELF-DEFENSE – unarmed assailant	
23	Defense against hand strikes	10
24	Defense against leg strikes	10
25	Defense against chokes	10
26	Defense against grappling	10
27	Defense against assailant who holds your weapon	10
28	Physical control hold	15
29	Leverage (elbow, wrist and arm joint)	20

	SELF-DEFENSE – defense against armed assailant	
30	Defense against stick attack	10
31	Defense against a knife attack (coming from the top, side and from under, defense against a straight stab in the stomach, suppression of a knife attack to other person)	12
32	Defense against pistol attack (defense against underarm pistol attack, defense against attack with pistol in-holster at the front, defense against attack with pistol in-holster behind)	10
33	Combat situations trainings Jozić (2002), Jozić, & Mendeš (2010).	10

	CLOSING PART OF TRAINING: 5 minutes	
34	Stretching elements	10
35	Elements of autogenic training, Kwatsu medicine of judo, Momirović and Sviben (1960)	15

Methods of processing data

Descriptive statistical parameters will be calculated as follows:

- arithmetic means (Ar.M.); - standard deviation (S.D.); - maximal result (Max);
- minimal result (Min); - skewness-measure of asymmetry (a3); - Kurtosis – measure of „peakedness” (a4).

RESULTS AND DISCUSSION

Table 2. Descriptive parameters for transitive screening.

	<i>N</i>	<i>Ar.M.</i>	<i>Min</i>	<i>Max</i>	<i>S.D.</i>	<i>a3</i>	<i>a4</i>
<i>BH</i>	20	183,45	174,00	196,00	5,52	0,34	0,36
<i>BW</i>	20	90,25	70,00	117,00	12,29	-0,06	0,14
<i>SAR</i>	20	80,48	70,60	95,00	7,03	0,39	-0,72
<i>LJ</i>	20	226,33	170,00	270,00	27,24	-0,34	-0,72
<i>SU 2 min</i>	20	62,45	40,00	100,00	17,49	0,78	-0,12
<i>PLU</i>	20	8,55	0,00	20,00	5,95	0,58	-0,85
<i>BENCH 70%</i>	20	16,35	1,00	55,00	12,96	1,30	2,84
<i>PU 1 MIN</i>	20	31,85	14,00	57,00	11,07	0,36	-0,08
<i>VJ</i>	20	44,45	35,67	59,00	5,88	0,80	0,41
<i>SQ 1 MIN</i>	20	43,75	30,00	65,00	9,37	0,47	-0,17

Body height (BH), body weight (BW), sit and reach (SAR), double-leg long jump (LJ), sit-ups (SU), pull-ups (PLU), bench press at 70% of body weight (Bench 70%), push-ups in 1 min. (PU 1min), double-leg vertical jump (VJ), squat (SQ) in 1 min.

Table 2 show basic descriptive parameters of a group of part-time students attending Zagreb Police College. Concerning the results presented in Table 2, we can see descriptive statistics for anthropometric and motor variables, arithmetic means (Ar.M), minimal results (Min), maximal results (Max), standard deviation (S.D.), skewness – measure of asymmetry (a3) and Kurtosis – measure of curvature (a4), Dizdar (2006). Data were processed by statistical package „Statistic for Windows 9.0”.

Obtained results presented in Table 2 show basic descriptive parameters of the first-year part-time students in transitive testing. Students demonstrated relatively good development of motor abilities (Table 2, descriptive parameters), their results belong to average and above average category when compared to established standards for Croatian army members (Jukić et al., 2008), and intervention police members, In-service programs, book 1, Command of Intervention police, (2013), and this is outcome of regularly conducted aerobic training and high level of intrinsic motivation for training and specialized training.

Lower limb flexibility in first-year part-time students is important because it increases amplitudes of movements and in some situations can be used as a tool, or prevention training for athletes as well as police officers, tactical employees, Scofield and Kardouni (2015). Average result obtained on a flexibility test was 80.48 cm, and belongs to category of higher result than result obtained by Croatian army members (Jukić et al., 2008), probably because part-time students were taller than members of Croatian army. Results obtained on a flexibility test indicate that part-time students in their structure of moving will be „softer”, more economical and situationally more successful, taking individually or as a team, so they will more easily and rationally perform all elements of

police self-defense, aerobic and anaerobic tests, and probably achieve desired potentials in many other motor abilities as well as in fighting skills in a faster and easier way. Based upon the test results for evaluation of explosive jumping strength of part-time students attending the second semester of the first year, whose average result for double-leg long jump was 226.33 cm (Table 2, descriptive statistical parameters), we can annotate that these entities achieved desired level of lower limb explosive jumping strength.

Average results of mentioned test indicate that part-time students obtained almost identical results as Croatian army members, i.e., recruit, they are also better than military pilots but weaker than members of special units of Croatian army (Jukić et al., 2008). Test results for evaluation of explosive jumping strength, measured by double-leg long jump distance, in this paper, indicate that good result achieved in this exercise can be used as a good predictor for criterial, dependable variable, that is, successful performance of firearm shooting, according to Đuranović (2009).

Tests for evaluation of repetitive strength, both sit ups in 2 minutes and pull ups until failure, showed good level of repetitive strength of arm musculature and shoulder area, abdominal and trunk musculature when compared to tactical employees, (Dawes et al., 2014). Comparing results obtained by part-time students attending the second semester of the first year, to part-time S.W.A.T. team members who are occasionally engaged in S.W.A.T. operations, we found that students have almost identical level of repetitive strength of arm musculature and shoulder area, whose average obtained result was 8,55 pull ups (Table 2, descriptive parameters).

Test results for evaluation of repetitive relative strength of arm musculature and shoulder area (bench 70%) point to good repetitive relative strength of arm musculature and shoulder area of the first-year part-time students, but with observation that there are entities who can lift 70% of their body weight only once. Considering results it can be said that official and individual program should have following: training elements for development of entities' repetitive relative strength of arm musculature and shoulder area, needed number of judo throwing together with additional exercises with weights, kettlebells and, of course, lot of sparring in standing position and on the ground.

Test for evaluation of explosive jumping strength, i.e. double-leg vertical jump test, shows relatively good development of lower limb explosive force, and with average result of 44.45 cm (Table 2, descriptive parameters), according to domestic authors, belongs to category of acceptable results. Presented result is superior to result obtained by Croatian army recruits, but worse than result obtained by special military teams and Croatian military pilots (Jukić et al., 2008), and also worse than explosive jumping strength results obtained by part-time students attending the second-year at Police college, whose average result was 51,16 cm, (Jozić et al., 2019).

CONCLUSION

Results collected by diagnostic procedures point to good level of motor abilities of part-time students attending the second semester of the first year. Tested students demonstrated well developed explosive jumping strength of lower limbs, with average result of 44.45 cm, which is considered as a good average result when compared to the established standard results for Croatian army members, (Jukić et al., 2008). Considering the test results of lower limbs explosive strength, (Table 2), it can be concluded that part-time students have desirable level of lower limbs explosive strength, as can be seen by obtained results of double-leg long jump where average measured distance was 226.33 cm. Presented result is at the same category as Croatian army members, (Jukić et al., 2008), and worse than results of members of Special task unit of Intervention police, In-service programs (2013), implying that only some students are able to pass the highest level of the test for explosive power of lower limbs, enabling them to be accepted in special police unit, (Šalaj & Šalaj, 2011). In special police forces maximum required value to be obtained on explosive power test of lower limbs, i.e. double-leg long jump, is 260 cm, and has been applying during annual testing.

Results of double-leg vertical jump are at the same level as results obtained by Croatian army members but in some cases they were a little bit higher. Therefore, we can be satisfied with obtained results of initial testing, where the average result was higher than 51 cm (Table 2), with some excellent individual results. Test results show acceptable level of explosive jumping strength of part-time students attending the second year of education.

Results of initial training indicated relatively good, but not enough developed relative repetitive strength of arm musculature, shoulder area (pull ups with the 8 repetitions), (Table 2) and trunk (sit-ups in 2 min), altogether substantial in performing official duties (Mendeš et al., 2018); these can be upgraded with application of judo training (Sertić & Segedi, 2013) and police self-defense, (Jozić, 2002; Jozić et al., 2019; Jozić & Mendeš, 2019). Current physical fitness of students indicates necessity of reinforcing special physical preparation program with elements for improving arm musculature, shoulder area and trunk as well. Important roles in special physical training should belong to training with kettlebells and free weights, according to Jozić & Zečić (2012), and monitoring officers' progress by following tests: bench press at 70% of body weight and pull-ups on bars and quality performance of different police tactics, arrest and self – defense skills, according to Renden et al., (2016).

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