

## THE LEVEL OF GENERAL MOTOR PERFORMANCE OF YOUNG JUDOKAS IN SLOVAKIA

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Slovakia**ABSTRACT**

Presently, we do not meet with serious health complications of people involved in sport, caused by hypokinesia, but we can observe relatively lower level of physical performance, in comparison with people involved in sports before the year 1990. The trend of lower physical performance, may however limit the performance of young judo competitors. Therefore in our studies, we tried to look into the general physical performance of young judo competitors, and compare it with data from before the year 1990. The aim of our work was to diagnose the level of conditioning skills using four variables, in 88 selected judo competitors - boys aged 14 to 16 years who were members of the center for talented youth in Slovakia. The results we had obtained were compared with the standards valid in the same age group until 1990. The Slovak Republic was at the time still part of Czechoslovakia. To elaborate collected data, we used basic statistical methods such as: arithmetic mean, standard deviation, minimum, maximum, variance, median and mode. We present the differences in motor performance in the transparent graphs. We came to the conclusion that in the medicine ball throw test subjects achieved better results in an average of 81 cm than in the past, in the test under-grip pull-ups on bar they were worse on average of 6 reps, in the depth of forward bend test in a standing position we also recorded worse performance by an average of 4.41 cm, in the rope climbing test they achieved better results on average by 0.52 seconds. In the two variables studied our group showed worse performances compared to the standards in the past. We see the cause especially in neglecting stretching exercises after the session, neglecting general physical training, as well as premature specialization in Judo. In contrast, in the two remaining variables our judokas achieved better performance compared to the standards in the past. They show higher levels of speed and explosive strength of upper extremities and back muscles. The main reason for better performance of our group is that the training focused on the specific muscles as well as the specificity of judo training.

**Key words:** motor performance, youth, judokas

**INTRODUCTION**

Motor tests are tools for motor skills assessment. They are used for the examination of conditions and the control of dynamic changes in physical activities performed by people participated in sport and people not participated in sport. The basic objectives of sport diagnosis are focused on: assessing the level of motor skills in sports, evaluation of training effect, objectification of training load, improve the training process, as well as the prevention of accidents and health problems (BELEJ – JUNGER, 2006).

General tests should affect the general level of the athlete's readiness. The general tests in judo are held at the beginning and the end of the preparation period during the examination of changes in the level and the assessment of the training loads during this period. The battery of motor tests in judo for children and young judokas in Slovakia usually contains running at 50 m, 12 min. run, shuttle run 10 x 5 m, the triple jump, medicine ball two-handed throw, depth forward bending, split, multiple pull-ups on the horizontal bar, sit-ups in 1 - 2 min, raising legs to the bar, rope climbing, standing on one leg duration (ŠTEFANOVSKÝ, 2009).

The aim of this research was to diagnose the level of the conditioning skills over five years (2008 - 2012) using four observed variables. The results were evaluated and consequently compared with the standards valid prior to 1990 for the same age group.

**METHODS**

The examined set included 88 male judokas, with an average age of 15.6 ( $\pm$  1.9) years, average body weight of 64.6 ( $\pm$  6.3) kg and height of 164.7 ( $\pm$  9.7). The participants have been regular member of the Slovak Union of Judo with a valid license and also members of the center for talented youth in Bratislava. They were holders of the 4th, 3rd and 2 degree of technical complexity (Kyu). All the participants confirmed by a written declaration that they agree with release of the test results.

Testing was conducted over five years (2008 - 2012), always at the beginning of the calendar year. The tests were held in Bratislava, during judo training camps always under standard conditions. The participants completed proper warm up and stretching warm up first, followed by exact explanation and demonstration of each test. Test battery consisted of several tests: we included four selected independent variables in our research: 1. medicine ball throw [cm], 2. under-grip pull-ups [n], 3. standing bend-over position [cm], 4. the 5 m rope climbing [s]. The first test had three test trials; the remaining tests were limited to one measured attempt. The results we had obtained were compared with the standards valid prior to 1990 in the same age group (ŠTEPÁNEK et al, 1990). These were standards valid for judo competitors of the former Czechoslovakia. We assumed the results of the judo competitors from the center for talented youth would not reach the level of the norms before 1990.

**RESULTS AND DISCUSSION**

Table 1 Comparison of average measured data and the norms for 14 – 16 year old judokas.

	MEDICINE BALL THROW [cm]	MEDICINE BALL THROW [cm]	PULL-UPS [n]	PULL-UPS [n]	STANDING BANDOVER [cm]	STANDING BANDOVER [cm]	ROPE CLIMBING [s]	ROPE CLIMBING [s]
	Measured values 2008 - 2012	Norms before the year 1990	Measured values 2008 - 2012	Norms before the year 1990	Measured values 2008 - 2012	Norms before the year 1990	Measured values 2008 - 2012	Norms before the year 1990
aver. val.	648,64	567,50	10,19	16,50	7,09	11,50	7,75	8,27
stan. dev.	148,96		6,13		7,96		5,30	
median	615		10		-9		8,25	
min.	400		0		-21		0	
max.	1110		26		18		20,5	
var.	710		26		39		20,5	

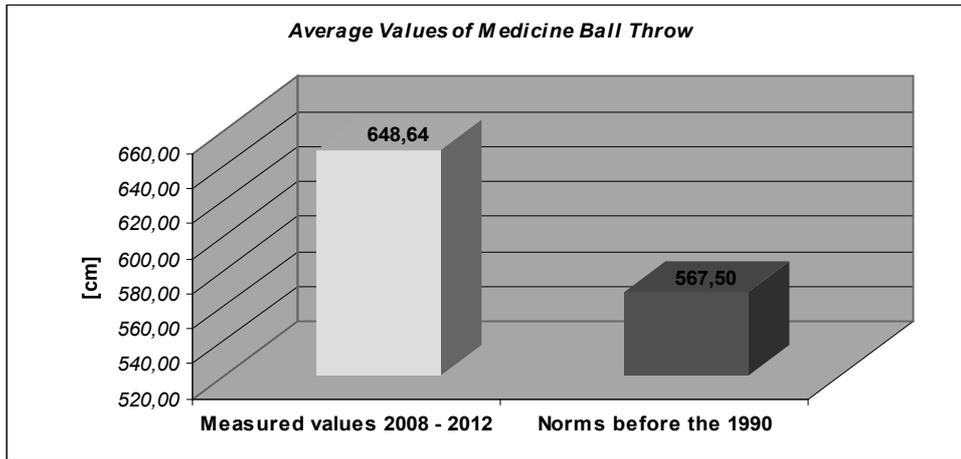


Figure 1  
Comparison of the average measured values and the norms for Medicine Ball Throw

In the medicine ball throw test the subjects gained better results in an average of 81 cm in comparison with the standards of the 1990 (Fig. 1). We assume that the effect of the contemporary and specialized judo training based on the latest scientific research, which is focused on the strength of the upper limbs, abdominal and back muscles, resulted in better outcomes as standards of 1990. Abdominal and back muscles along with the muscles of the upper extremities are the dominant for judokas' performance and many trainers draw their attention to the development of these muscle groups in conditioning training.

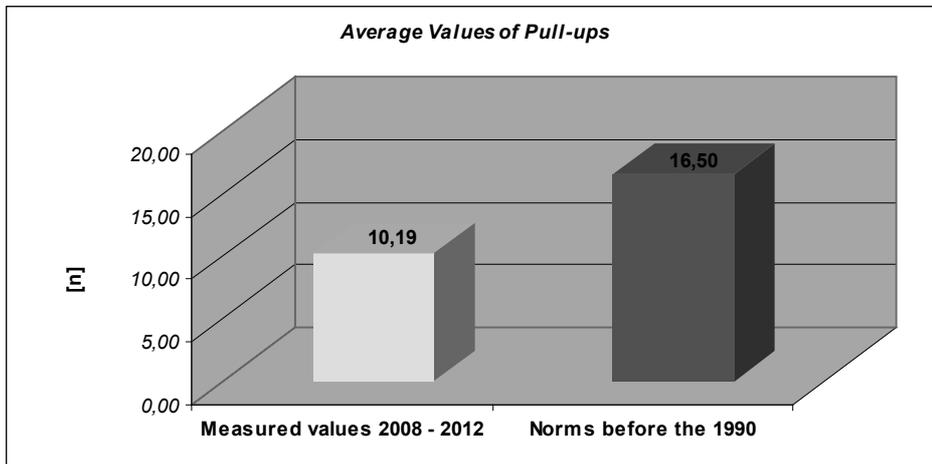


Figure 2  
Comparison of the average measured values and the norms for Pull-ups on the bar

Our participants achieved worse results in under-grip pull-ups on horizontal bar compared to pre-1990 standards on an average of 6 reps (Fig. 2). Pull-ups on the bare are not popular in the training of young judo competitors, mainly because of their energy consumption and high level of requirements for endurance strength of the upper extremities. Unpopularity and conditioning intensity of this exercise might be the main cause of the lower level of our subjects compared to standards before 1990.

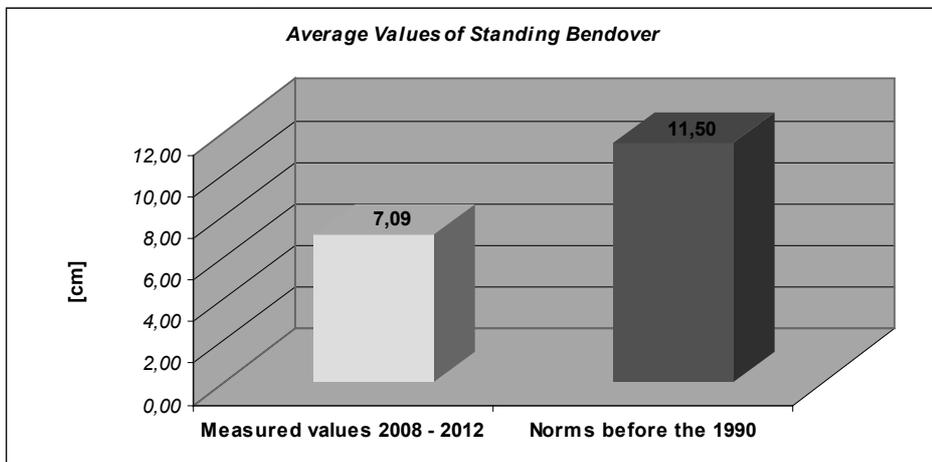


Figure 3  
Comparison of the average measured values and the norms for Standing Bend-over

In the standing bend-over test, we experienced worsening of 4.41 cm compared to 1990 (Fig. 3). This test is focused on knee flexor (biceps femoris, semitendinosus, semimembranosus). These muscle groups with spinal extensors (erector spinae) tend to shorten. We believe that the worsening in the monitored group occurred as a result of compensation and stretching exercises negligence, these should be applied after strengthening part or at the end of the training. Compensation exercises are often performed very superficially, often unsupervised by coach in the final part of the training unit. Furthermore, we believe that the actual compensation and stretching exercises are very unpopular among young judo competitors in Slovakia.

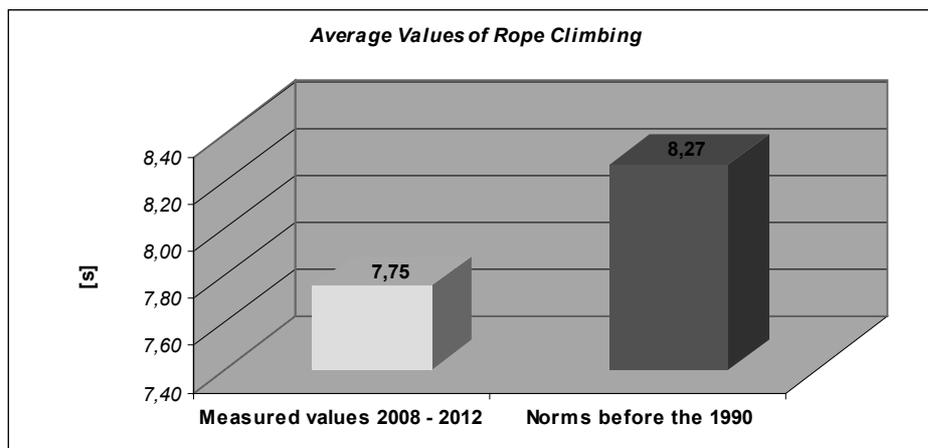


Figure 4  
Comparison of the average measured values and the norms for 5 m Rope Climbing

Our monitored group achieved in the 5 m climbing rope test on average of 0.52 s better results than the standards before 1990 defined. In this test, the good fitness level of dominant groups of muscles for judo (muscles of the upper limb and trunk muscles) was shown. At the same time we can say that the rope climbing is often included in the current trainings of judokas since the youngest category.

When comparing the subjects with the standards valid prior to 1990, we can conclude that in the two observed tests (medicine ball throw, climbing to 5 m rope) our group reached better results, as the standards in 1990 defined. In contrast, in the other two observed variables (pull-ups on horizontal bar, standing bend-over) we experienced worsening of the condition.

#### CONCLUSIONS

Based on lower flexibility level of the judo competitors we recommend more intense specification of training units on development of this skill and stop overlooking the compensation and stretching exercises. Stretching should be part of every training unit during warm up (dynamic stretching) and cool down (static stretching) and controlled by the coach (ŠTEFANOVSKÝ et al, 2012). The coaches should draw attention of their athletes to the importance of the exercises. We recommend the creation of a handbook or DVD for coaches, which would graphically show the important muscles group for judo competitors (in term of shortening and weakening) and compensation exercises related to them. We further recommend drawing the attention to the basics multi-joint exercises, such as pull-ups on horizontal bar, and despite unpopularity of these exercises among the participants we recommend not to substitute them for easier variants. Important part of the coaches' work is to emphasize the need for other physical activities outside the training sessions for this age category with regard to general motor skills development and active regeneration.

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