THE DIFFERENCES BETWEEN THE QUALIFICATION AND FINAL RESULTS IN THE JUMPING DISCIPLINES OF THE FINALISTS OF EUROPEAN INDOOR CHAMPIONSHIP IN PRAGUE 2015

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Abstract
The aim of this study was to identify differences between athletes in jumping disciplines of European Indoor Championships held from 6-8 March 2015 in Prague. The sample included 66 athletes (33 female and 33 male), who participated in the qualifiers and finals. The results achieved in qualification and final appearances have been analyzed in four official jumping events (long jump, triple jump, high jump, pole vault). Using the module's t-test the results were obtained that showed that 56% of male and female athletes in all disciplines achieved better final than the qualifying result, while 28% achieved a better result in qualifying than in the final. Also 14% of the athletes achieved the same result in both appearances (disciplines high jump, pole vault). Statistically significant differences for the level ($p<0,05$) between the qualifications and finals were recorded in the disciplines of long jump (women) and triple jump (men).

Key words: *differences, jumping disciplines, athletes.*

Introduction

Athletic jumping disciplines are modified natural body movements, which have their base in phylogenetic form. They belong to a cyclical counter-cyclical movement where the result is measured by physical units, and it is the result of individual training of jumper. On the success of the result high influence have morphological, motoric space that are usually analyzed individually, depending on the discipline and its method of execution. However, the best results are achieved when there is a high correspondence between these areas. Beside to the basic motor abilities (strength, speed, coordination) that have a very important role, no less role have specific motor (explosive power) and morphological dimensions on the basis of which the right selection and guidance of the young athletes is made towards a particular discipline in which they are expected to achieve the best results (Bompa, 2000). It is known that jumping discipline are characterized by increased longitudinality of skeleton, by lower body weight on the basis of which a certain model of jumper is made (Mihajlovic, 2010). Beside these two two spaces big influence on the result success have sports experience, number of competitions, the type of competition, and also some psychological and motivational factors (Pavlovic, 2014). Every athlete is characterized by a variety of mental and physical (morphological) characteristics that distinguish him from the other athletes. It is these physical and psychological capabilities that define and classify him in the group of jumpers (long jump, high jump, triple jump, pole vault). That proportion of different anthropological characteristics is different and is largely genetically determined (Đuraškovic, 1997; Dragas, 1998).

Also there is a large degree of manifestation of motor abilities that together with morphological and functional dimensions complete the profile of the athlete jumper. A jumper should possess such qualities like the ability to self-analysis, self-criticism of his and of his opponent's abilities. Beside that a special form of self-control is needed that will allow the proper disposition of power for the competition. Pole-vaulters are also, one might say, the most capable in every respect. Their complex technique of performing confirms it. They must have a well-developed motor abilities (strength, speed, balance, accuracy, flexibility, coordination), a good sense of space and time parameters, the sense of rhythm and that hey are good gymnasts. Their morphology is of a variable type, which means there are shorter and higher jumpers. The research conducted by Pavlovic (2012, 2013) confirmed that the average height of the male finalists in the pole vault at the Olympic Games in Beijing in 2008 was slightly above 185cm, body weight nearly 79kg, BMI around 23kg/m², while their age was 26,5 years. Unlike men, women were on average of height around 173cm, body weight 59kg, BMI=19,74kg/m², age 26 years. It was also found that the average height of male jumpers in the long jump of finalist in Beijing, 2008 was 180,25cm, 75kg body weight, BMI= 23,16kg/m², age 24 years. Unlike them, the average height of women's finalists was 174,75cm, 61,62kg weight, BMI =20,19kg/m², age 27 years. When it is about jumpers in the triple jump there is an example that the height of the ten top jumpers is about 188 cm (202cm-J.Gregorio), body weight of 65-85kg and above. (J. Gregorio, 102kg). Women are also tall, from 172-180cm.

They need the same physical and mental abilities as for the high jumpers. It should be noted that the great speed is also needed, explosive power, strength of leg muscles and body, because long jump over 850cm, is inconceivable without a high-speed start-up o' that on board should be 10m/sec and higher. This high speed requires a significant improvement and mastering of rebound with maximum power in the minimum part of time. According to research of Pavlovic (2012, 2013) the average height of the male finalists in the triple jump at the Olympic Games in Beijing 2008 was 190,5cm, 81,75kg body weight, BMI=19,39kg/m², age about 27 years. Women finalists in Beijing were of height on average 173,12cm, 60,12kg body weight, BMI= 20,09kg/m², aged about 28 years. One of the basic characteristics that is general for all high jumpers, is their body height. The ten best jumpers in the world have height of 197-201cm in males and 178-188cm in women. High jumpers have long legs and in proportion to this shorter body trunk. Pavlovic (2012, 2013) states that the average height of the male finalists of the Olympic Games in Beijing in 2008 was 190,25cm, body weight almost 79kg, BMI=21,89kg/m², age slightly over 26 years. Unlike them, the women were on average of height 183,37cm, body mass slightly above 62kg, BMI 18,6kg/m², age 25 years. A significant impact on the variability of the results is also the body composition of competitor. Ugarković, in 1996 defines the body composition of contestants in jumping events in athletics. In both male and female jumpers dominates muscle mass (50-53%), the second are the bones (16-19%), and the last is fat (5-9%). Based on these parameters, it can be concluded that in the jumpers of both gender dominates mesomorphic component with participation of ectomorph component. These allegations have been confirmed much earlier in the research of Carter, in 1984 on a sample of participants in the Olympic jumping disciplines. Somatotype, which corresponded to women athletes is 2,3-3,1-4,0 while men defined the somatotype 1,7-4,6-3,4. According to the presented one can conclude that the score performance of athletes is a consequence of the good features of anthropological space integrated into a single whole. As such, characteristics define homogeneous groups of athletes of both gender who have good correspondence with achieving top result. What is further upgrading in terms of achieving good result is, of course, good technical performance and a very important mental moment in the point of the competition, which is perhaps the most important. It is very common in competitions (jumping or throwing) that same athlete achieves different results in the qualification and in the final performance, or achieve a better result in qualification than in the final (Pavlovic, & Idrizovic, 2014). The question is why and how statistically significant are these differences? So the primary goal of the current study was to determine possible differences between the qualification and the final results in jumping disciplines of the European Indoor Championship in Prague, in 2015.

Methods

The study sample defined participants of European Athletics Indoor Championship, held from 6-8. March in 2015 in Prague. The study included a total of 66 athletes (33 male and 33 female athletes) who through qualifications achieved participation in the finals. The achieved results in qualification and final appearance in the jumping events (long jump, triple jump, high jump, pole vault) were analyzed. All results were taken from the official website of the European Athletics Association (EAA)***

Results and discussion

The results of the qualification and the final results are shown in Tables 1-4. By inspection of tables it can be concluded that about 56% of male and female athletes of all disciplines had better final results of the qualification, while 28% achieved a better result in qualification than in the final. An interesting fact is that 14% of the athletes achieved the same result in both appearances (disciplines high jump, pole vault).

Table 1. Long Jump (Men and Women)

Men	Results		Results	
	Qualification	Final		
M. Torneus (SWE)	7,97	8,30	1	Q<F
R.Juška (CZE)	7,79	8,10	2	Q<F
A. Otterling (SWE)	7,96	8,06	3	Q<F
L.Tsatoumas (GRE)	7,90	7,98	4	Q<F
J.M Okutu (ESP)	7,86	7,93	5	Q<F
P. Shalin (RUS)	7,94	7,80	6	Q>F
A. Camara (GER)	7,79	7,70	7	Q>F
R. Kask (EST)	7,82	7,24	8	Q>F
Women	**Results**		**Results**	
	Qualification	**Final**		
I.Španović (SRB)	6,76	6,98	1	Q<F
S.T.Moguenara (GER)	6,72	6,83	2	Q<F
F.Marincu (ROU)	6,57	6,73	3	Q<F
A.Rotaru (ROU)	6,59	6,79	4	Q<F
E.Lesueur (FRA)	6,59	6,74	5	Q<F
M.Bauschke (GER)	6,53	6,54	6	Q<F
K.M.Mey (TUR)	6,57	6,57	7	Q=F

In Tables 5-8 were analyzed differences using the T-test. The differences included the results of male and female athletes who have been through qualifying performances in the final of athletics indoor championship in Prague, in 2015. Overall, in all four events were observed differences between the qualification and the final results of the competitors, but only in two disciplines was observed statistically significant difference. The first statistically significant difference was seen in female athletes in the long jump discipline (T=-3,298; p<0,05). The average score in qualifying was (Q= 6,61m), and in the final (F=6,72m), which is for 9 cm better result. Another statistically significant difference athletes achieved in triple jump discipline (T= -2.360; p<0,05). The average recorded length in triple jump in qualifying was Q=16,56m), and final (F=16,78m), which is for 22cm better result.

Table 2. Triple Jump (Men and Women)

Men	Results		Place	
	Qualification	Final		
N.Evora (POR)	16,61	17,21	1	Q<F
P. Torrijos (ESP)	16,51	17,04	2	Q<F
M.Oprea (ROU)	16,63	16,91	3	Q<F
A.Fyodorov (RUS)	16,53	16,88	4	Q<F
G.Tsonov (BUL)	16,61	16,75	5	Q<F
D. Sorokin (RUS)	16,76	16,65	6	Q>F
D.Platnitski (BLR)	16,44	16,43	7	Q>F
R.Dimitrov (BUL)	16,38	16,36	8	Q>F
Women	**Results**		**Result**	
	Qualification	**Final**		
Y.Koneva (RUS)	14,20	14,69	1	Q<F
G.Petrova (BUL)	14,21	14,52	2	Q<F
H. Knyazyeva (ISR)	14,40	14,49	3	Q<F
K.Gierisch (GER)	14,20	14,46	4	Q<F
P.Mamona (POR)	14,26	14,32	5	Q<F
C.Bujin (ROU)	14,02	13,91	6	Q>F
N.Viatkina (BLR)	14,21	13,69	7	Q>F
K.Makela (FIN)	14,04	13,66	8	Q>F

Table 3. High Jump (Men and Women)

Men	Results		Result	
	Qualification	Final		
D.Tsyplakov (GRE)	2,28	2,31	1	Q<F
S.Chesani (RUS)	2,28	2,31	2	Q<F
A.Mastoras (ITA)	2,28	2,31	3	Q<F
A.Shustov (UKR)	2,28	2,28	4	Q=F
J.Baba (CZE)	2,28	2,28	5	Q=F
A.Protsenko (CYP)	2,28	2,28	6	Q=F
G.Tamberi (CYE)	2,28	2,24	7	Q>F
K. Ioannou (ITA)	2,28	NM	8	-
Women	**Results**		**Result**	
	Qualification	**Final**		
M.Kuchina (RUS)	1,94	1,97	1	Q<F
A.Trost (ITA)	1,94	1,97	2	Q<F
K.Licwinko (POL)	1,94	1,94	3	Q=F
.Palsyte (LTU)	1,94	1,94	4	Q=F
R.Beitia (ESP)	1,94	1,94	5	Q=F
J.Kasprzycka (POL)	1,94	1,94	6	Q=F
V.Veneva-Mateeva (BUL)	1,94	1,90	7	Q>F
M.Hruba (CZE)	1,91	1,85	8	Q>F
B.Szabo (HUN)	1,91	1,85	9	Q>F

Table 4. Pole Vault (Men and Women)

Men	Results		Result	
	Qualification	Final		
R.Lavillenie (FRA)	5,70	5,65	1	Q>F
A.Gripich (RUS)	5,70	6,04	2	Q<F
P.Lisek (POL)	5,70	5,65	3	Q>F
R.Sobera (POL)	5,70	5,85	4	Q<F
K.Filippidis (GRE)	5,70	5,85	5	Q<F
V.Lavillenie (FRA)	5,60	5,45	6	Q>F
A.Ivakin (RUS)	5,60	5,65	7	Q<F
J.Kudlicka (CZE)	5,70	5,75	8	Q<F
T.Scherbarth (GER)	5,70	5,80	9	Q<F
Women	**Results**		**Result**	
	Qualification	**Final**		
A.Sidorova (RUS)	4,60	4,80	1	Q<F
E.Stefanidi (GRE)	4,60	4,75	2	Q<F
A.Bengtsson (SWE)	4,60	4,70	3	Q<F
A.Zhuk-Krasnova (RUS)	4,60	4,60	4	Q=F
M.Fiack (FRA)	4,60	4,50	5	Q>F
N.Kiriakopoulou (GRE)	4,60	4,50	6	Q>F
K.Bauer (GER)	4,60	NM	NM	-
L.Ryzih (GER)	4,55	DNS	DNS	-

Table 5. Differents Long jump for athletics

	Mean±SD	T-value	p-level
Qualification (M)	7,88±,07	-,097	,925
Final (M)	7,89±,32		
Qualification (W)	6,61±,08	-3,298	,0132*
Final (W)	6,72±,15		

Legend: Mean (average value), standard deviation (SD), coefficient of t-test value(t-value), significance level (Sig.*p<0,05)

Table 6. Differents Triple jump for athletics

	Mean±SD	T-value	p-level
Qualification (M)	16,56±,12	-2,360	,049*
Final (M)	16,78±,29		
Qualification (W)	14,19±,12	-,204	,844
Final (W)	14,22±,40		

Legend: Mean (average value), standard deviation (SD), coefficient of t-test value(t-value),significance level (Sig.*p<0,05)

Table 7. Different High Jump for athletics

	Mean±SD	T-value	p-level
Qualification (M)	2,28±,00	-,741	,483
Final (M)	2,29±,02		
Qualification (W)	1,93±,01	,968	,361
Final (W)	1,92±,05		

Legend: Mean (average value), standard deviation (SD), coefficient of t-test value(t-value),significance level (Sig.*p<0,05).

Table 8. Differents Pole vault for athletics

	Mean±SD	T-value	p-level
Qualification (M)	5,68±,04	-1,230	,254
Final (M)	5,74±,17		
Qualification (W)	4,59±,05	-,804	,448
Final (W)	4,63±,30		

Legend: Mean (average value), standard deviation (SD), coefficient of t-test value(t-value),significance level (Sig.*p<0,05).

In the disciplines of high jump and pole vault in both subsamples and in the long jump in the subsample of men the differences were achieved, but they were numerically insignificant so they did not show statistical significance. These kind of results are a consequence of high homogeneity of competitors, because it is still about top-ranking athletes and competitions. Athletic jumps are specific cyclic-acyclic movements that in addition to good performance techniques require from competitors a high level of motor, specifically-motor and functional abilities. Also all the jumping discipline contain appropriate morphological profile of competitor that is characteristic only for it.

This includes body height, weight, BMI, and very often years of age. It is usually said that the jumpers are very tall and relatively of less body weight, long legs, long and thin muscles, and in muscle structure dominate white muscle fibers what implies that the discipline is in correlation with the muscle structure of competitors (Stanković & Rakovic, 2011; Pavlović, 2014). To better understand the possible individual similarities and differences between the jumpers that may affect the final result of the qualification and final performances we will mention the following facts.The basic components of which depends the length of the long jump without distinction which technique is used are the run-up speed, the intensity of bounce impulse, swing of free extremities. Speed achieved by a jumper on the runway is not identical to the maximum sprint speed, due to the inability of quality of bounce. Top jumpers more exploit their sprint speed (about 90%) from the jumpers of the middle and lower level (85%). According to the quotes (Locatelli, 1993), Carl Lewis in Tokyo in 1991, during a jump of 8,91m, the last ten meters (11m-1m) before the jump, crossed in 0,89s, which represents the speed of 11,26m/s, which is 95,3% of his maximum speed. Giovanni Evangelisti during a jump of 8.08m, the same ten meters crossed in 0,93s, which is the speed of 10,75m/s, which is 97,5% of his maximum running speed. The record holder Mike Powell when setting the record of 8,95 m for the same part of runway crossed in 0,92s, running at a speed of 10,87m/s. This data indicates that the speed is significant, but more significant is the ability of transition of speed into the length of the jump (Idrizović, 2011). In the long jump and in the triple jump as an indicator of body condition of jumpers the potential of speed strength occurs, which is reflected in the rapid and maximum strong rebound when the pressure on the ground exceeds 6-8 times the weight of the athlete, 350-500kg (Čoh 2002; Pavlovic, 2014). As a result, a rebound leg is slightly bent at the knee (from 165º-178º) and in hip joint (γ=165º-170º), and there is also partially bending in the joints of the spinal column. It all provokes an eccentric character of work (Stefanovic, 1992; Pavlovic, 2010; Mihajlovic, 2010; Idrizović, 2011), where the deliberate release into the knee joint is done to exploit the force mm. of quadriceps femoris to the extent that leg can withstand the pressure. In this case it is not possible to avoid the torque component of pressure in relation to the knee joint.

The current top jumpers at the moment of rebound have less flexion in the knee joint but stronger quadriceps force. Since the rebound is directed vertically, and run up in the horizontal direction, then in the long jump there are two different angles, rebound and elevation. The effect of the horizontal and vertical components directs the body so that an elevation angle can be from 18º-26º (Jaric, 1997; Jovovic, 2006). This means that by decreasing of the angle (β) increases the resultant of movement (R) what reduces the elevation angle (α).

Keeping all this in mind, the rebound in the long jump is to be executed with top speed and up to the ultimate limits only after the moment of vertical. All that depends on the constitution of jumper and his technical level.In the high jump the synchronized action of muscle kinetic chains is emphasized, which stretches from the foot to the muscles of arms and shoulders. To perform complex actions, both when entering the bounce, and during the jump, a high level of coordination of movement and good condition of the vestibular apparatus is needed. The need for higher amplitudes during heavy swing movements in variants of jumps requires that jumpers achieve high mobility. (Bowerman, et al., 1998). It is especially necessary good mobility of the spinal column especially the lumbar and thoracic parts.

The specificity of the character of performing the competition in the high jump requires from athlete special mental state. In the triple jump is also dominant the relationship of horizontal and vertical components in the proportion of 3: 1. which means high speed of run-up and low angle of rebound. The average length of the jumps of today's triple jumpers in percentage is 36,5% -30% -33,5%, with a note that there are also here the individual differences among jumpers, where the length of the hop is 34-38%, 28-33% steps and jump 32-34%. The percentage ratio is in Idowu (36-30-34%), Evore (37-31-32%), Copel (34-33-33%), Taylor (34-29-37%), Olson (37-29-34%), Clayea (33-31-36%). Also rebound angle on average ranges from 14-21º and is in inverse relation to speed. With the reduction of speed during landing and rebound of jumper, which is inevitable, increases his explosiveness and movements of extremities, and consequently increases the rebound angle. Today it is not possible to find a jumper that will have the same rebound angle of hop jump (first jump) and rebound (third jump) because of decreasing speed in continuous series of jumps. In today's top jumpers angle of rebound at the stage of the hop jump is from 13º-16º, steps from16º-12º and in jump phase from 18º-26º. This relationship of '' jumps '' of the first top-ranked from the World Cup in Berlin, 2009. (P.Idowu) was 14º-13º-21º, the second placed (N.Evora) 16º-13º-26º, while third-placed (A.Copello) was 13º-15º-20º. At the World Championship in Daegu, 2011. the first-ranked (C.Taylor) had the following values of rebound angle of 10°-13°-18°, the second placed (P.Idowu) 13°-14°-22°, and the third placed (W.Claye) 11°-13°-22° (Seo Kim, Nam, et al. 2011).

The speed of ascent of the center of gravity of the body is also decisive in the high jump. The efficiency of the jump is increased in accordance with increasing of takeoff speed, by optimization of the takeoffs angle and reducing the space between the slats and the center of gravity of the jumper at the moment of crossing the slat. A competitor's score is the difference between the maximum height of the ascent of the center of gravity of the body and the distance between the slat and the center of gravity of the jumper.

This tells us that the success of the high jump depends on the rational transfer of the center of gravity of the body, as well as certain segments of the body across the slat, that is the technique of jumping. In the last three steps the greatest length of the steps is achieved and it comes to lowering of TT due to the reduction in the angle of the knee joint, especially in the last step before the bounce, in order to increase the effect of quadriceps muscle (141º-148º) and the angle of vertical axis on the horizontal plane (angle of refbound) is about 80º-110º. The highest horizontal speed of run up top jumpers reach at 3-5 meters ibefore the rebound (7,5-7,8m/s), with fact that the highest speed is in the penultimate meter (7,8-8,4m/s), while in the last decreases (6,6 to 7,3m/s) and shortens the step length by about 45cm as a result of the reaction of solid ground whose force reaches a value of 350-600kg. The speed of ascent is also characteristic for pole vault. In addition to speed a significant impact on the result success affect the characteristics of the pole, the level of development of speed strength capabilities, speed of run up, the height of the grip of the pole and others. By run up the maximum kinetic energy is achieved, which is the product of the mass of a jumper, the speed achieved by run up, the moment of inertia of the jumper in the rebound, the angular velocity in the sagittal plane.

The speed of run up, just before the rebound is from 9,3-9,6m/sec. and is largely weighted by carrying the pole, so it is taken into account that the pole is carried in as much as possible rational way. During run up, the jumper holds a pole so that it moves translationally with a relatively small angle (about 45º) in relation to the vertical, while with the horizontal plane forms substantially higher angle (Tončev, 2001; Stankovic, & Rakovic, 2011).

When carrying, the speed of pole oscillates in relation to the speed of jumper, which is caused by movements of arms of small amplitudes in the direction of the movement of the system (jumper-pole) but with alternating directions of movement in relation to the movement of jumper (Jovovic, 2006). In the phase of rebound the two pendulums are characteristic. One is stayed and is made by a common center of gravity of jumper and pole that oscillates around a fixed point on a solid surface. The second pendulum is hanging, and is made by the center of the gravity of jumper that oscillates around a fixed point of grips of the pole. In the first phase of support, the stayed pendulum achieves greater elongation, and hanging lower, while in the second phase is the reverse situation (upbeat, stretching, turning and pushing).

The angle of setting of the rebound leg on the ground is 115º-118º (cushioned folding is 30º-35º) at a rate of rebound from 0,12-0,14sec (Mihajlovic, 2010). What is characteristic for the pole-vaulters is the fact that they do not require a great height, and in particular the weight of the body, so that their morphological dimensions are at the level of lighter jumpers and runners.

Also an important factor is the ability to use pole, ie its elastic properties to a great extent defines the success of the result, as well as transfer of the acquired kinetic energy into potential energy. Most researchers who have studied in the space of morphologic characteristics agree that jumpers have in comparison to other athletes a greater amount of active body mass and that by Sheldon classification are the closest to athletics (long jump and pole vault) and leptosoma (high jump, triple jump) (Milanovic, et al., 1986; Bowerman et al., 1998; Čoh, 2001; Pavlovic, 2014). Also in result success of jumpers is very important the mental stability, regardless what discipline it is. In particular, it is emphasized at major events of european and world-class competitions when a strong motivating factor is manifested, the self-criticism of athlete, dose of positive extroversion, emphasized motive of achievement of high intensity. All these characteristics, beside technical, biomechanical and anthropological are very important in competition and it is they who largely determine the success of result. It is very difficult to integrate all this in conditions of great psychologicalpressure on one side, and strong motivation on the other. Often, athletes are between desires and their abilities, that are the consequence of different motivating factors. Different motivational factors, desires and abilities are very often a consequence of heterogeneous results at major competitions. It is also this research that to some extent confirmed it.

Conclusion

The research was conducted on a sample of 66 athletes (33 male athletes and 33 female athletes) participants at the European Athletics Indoor Championship in 2015 in Prague, that through qualifications achieved participation in the finals.

The achieved results of qualification and final appearances in four official jumping disciplines were analyzed in order to determine possible differences between the qualification and the final performances. The results showed that 56% of male and female athletes of all disciplines had better final results than in the qualification, while 28% achieved a better result in qualifying than in the finals, and 14% of the athletes achieved the same result in both appearances (disciplines high jump, pole vault). However, only in two events was observed a statistically significant difference.

The first statistically significant difference was seen in female athletes in the long jump discipline (Qualification=6,61m; Final= 6,72; $p<0.05$).

The second statistically significant difference was observed in the triple jump in male athletes (Qualification=16,56m; Final= 6,78m; $p<0.05$). Given that this is a top sample of respondents, a consequence of this relationship of results can be explained by differences in technique, mental and physical abilities, and mostly by cognitive and conative characteristics of participants.

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RAZLIKE IZMEĐU KVALIFIKACIJA I KRAJNJIH REZULTATA U SKAKAČKIM DISCIPLINAMA FINALISTA EUROPSKOG DVORANSKOG PRVENSTVA U PRAGU 2015

Sažetak
Cilj ovog istraživanja bio je identificirati razlike između sportaša u skakačkim disciplinama Europskog dvoranskog prvenstva održanog od 6-8 ožujka 2015 u Pragu. Uzorak je uključivao 66 sportaša (33 sportašice i 33 sportaša), koji su sudjelovali u kvalifikacijama i finalu. Rezultati postignuti u kvalifikacijama i finalu su bili analizirani u četiri službena skakačka događaja (skok u dalj, troskok, skok u vis, skok s motkom). Rezultati su prikupljeni koristeći mjerni t-test i pokazali su da je 56% sportaša i sportašica u svim disciplinama ostvarilo bolje finalne rezultate od kvalifikacijskih, dok je 28% postiglo bolji rezultat u kvalifikacijama nego u finalu. Također, 14% sportaša postiglo je jednak rezultat u obje izvedbe (discipline skok u vis, skok s motkom). Zabilježene su statistički značajne razlike za razinu (p<0,05) između kvalifikacija i finala u disciplinama skoka u dalj (žene) i troskoka (muškarci).

Ključne riječi: *razlike, skakačke discipline, sportaši*

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