

Original Article

Comparison of times recorded in the 60 m flat and the 60 m hurdles finals at the junior III national indoor championships 2010 and 2011

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Abstract:

The aim of this comparative study was to point out the dynamics of results in male and female athletes at the 60m flat and 60m hurdles events, heats and finals, of the Junior III National Indoor Championships carried out in March 2010 and March 2011. We took into account the results recorded during the finals of the 2010 and 2011 indoor competitions for Juniors III. In conducting the research we used the following methods: bibliographical study, test, statistical-mathematical and graphical method, and comparative analysis. The approach of this research was to examine the *hypothesis* that the dynamics of results with girl and boy juniors III during the speed events is an increasing one. The research included 64 athletes who were finalists in the 2010 and 2011 60m flat and 60m hurdles events at the Junior III National Championships which took place in Bacău. *The results* recorded for two consecutive years were tabulated, processed and analysed and highlighted the dynamics of results recorded by the finalists and the dynamics of participation in competition as well. The values recorded in girls and boys' 60m flat and 60m hurdles events showed that the average time in the final race was better in the previous year race. *The conclusions* of the study are that the in girls' 60m flat and boys' 60m flat races the times recorded by the winners are better in the 2010 final (8.00s –girls; 7.35s – boys) than those in 2011 (8.03s –girls; 7.41s – boys). In the 60m hurdles races the winners' times are better in 2011 (9.34s –girls; 8.80s – boys) than in 2010 (9.36s –girls; 8.86s – boys). It was also noticed that the dynamics of results for those two years has an increasing trend only for the girls and boys' 60m hurdles event, therefore the hypothesis is only partially confirmed. Year after year there are a lot of retirements of young athletes therefore there is no continuity at this level and those who obtain best results in the heats do not get first place in the final. These findings require increased attention during the training process.

Key words: sprint, competition, speed

Introduction

As a result of the accomplished work, after a long period of training, the sports result depends on the psychic features experienced by the athlete which can range from normal, ordinary ones to some less ordinary that can exceed the balance necessary for participating in the race. Human psychic system is very complex and reactive “and it cannot keep all its components constant” (M.Epuran, 2008, p.246), a fact which influences the constancy of results in sports. The emotions, psychic state and self-confidence can influence both the result and the place an athlete gets in a race. The speed ability cannot be analyzed or understood without the volitional act which is an essential aspect while elaborating the training methodology and the competition approach. During the contest, the athlete does not valorize his/her entire potentiality even when he/she establishes a record. The 60m flat or 60m hurdles sprints depend on athlete's volition, attention and on “the almost unique modality to involve the whole biological potentiality of the participant in a contest” A. Nicu (1993). The sports performance expressed by the time recorded (in seconds) is supported by “the sensation of moving forward and the perception of the movement velocity” (T. Ardelean, 1991, p. 28), and the time registered by an athlete in a race pointed out the activity of the nervous processes such as attention and volition in order to perform movements with high degree of velocity. “The velocity of a simple movement must be understood as the speed developed against very low strengths” (Renato Mano, 1996, p. 119), in this case the competition stress and the desire to obtain a better result, and for the 60m hurdles race the presence of the six obstacles on the running lane must be taken into account as well.

Material and Method

The *main objective* was the understanding of the dynamics of sports results on the base of the comparative analysis of the results registered at the finals of the Junior III Athletics Indoor Championships in the 60m flat and 60m hurdles races. The comparative analysis aims at emphasizing the evolution trend of the results

and participation in competitions of male and female juniors. The *research methods* were as follows: bibliographic study, observation, test, mathematical-statistical method, and graphic method. The evaluation test involved the 60m flat and the 60m hurdles sprints and the results were recorded by the ALGE Timing Optic 2 electronic device (www.splitsecond.com.au/). The timing device consists of a SJT start device, Model RLS 3c photocells, GAZ 4 scoreboard, OPTIC 2 timing device, and a laptop with Window XP. The start device consists of: 8 blockstarts STAMA, each of them having false start sensors SJS model, start microphones SM8, 9mm start gun, headset Q34, Printer P5-5 and cable reel KT150 which connect the device to the timing device. The ALGE OPTIC2 Photo finish system which is a computerized colour photofinish system with integrated evaluation system was used. The Colour Line Scan Camera scans each movement at the finish line (24 bit, 16.7 million colours) and a resolution of 1356 pixels. It stores the data on the laptop hard disk. A stored photo finish image can be displayed on the monitor or printed. The ALGE OPTIC2 is characterized by a good quality of the picture in all light conditions due to the modern line of the scanning sensor; the software Windows 2000 and Windows XP; a high resolution of 2000 lines per second and 1356 pixels; and the evaluation has a precision of 1/10000. The research has involved 64 subjects out of which 32 finalists (16 male juniors and 16 female juniors) in 2010 and 32 finalists (16 male juniors and 16 female juniors) in 2011. The final contest of the Junior III Athletics Indoor Championships was carried out for two consecutive years at the *Athletics Hall of Bacau* in March. The hypothesis to be confirmed is that “the dynamics of results registered each year by the Juniors III at the sprint events has a slightly increasing curve.”

Results

At the Athletics National Indoor Championships – Junior III in 2010, 48 girls and 40 boys participated in the 60m flat event and 12 girls and 18 boys in the 60m hurdles. In 2011, 44 boys and 36 girls participated in the 60m flat and 11 boys and 14 girls in the 60m hurdles events. Our research has included only those junior athletes who have qualified direct for the finals. The results were centralized, processed and analyzed according to the subjects' gender (boys and girls), separately for the 60m flat and for the 60m hurdles, and 2010 comparatively to 2011. The speed, as a psychomotor ability/skill, is mainly trained at the age of 7-15 years “through competition demands that involve quick reception and elaboration of information” (K.H. Bauersfeld, 1988), and through action systems performed with high frequencies. The sports results request the development of the acceleration ability which “is certified through increasing velocity” (Rață, B.C, 2008 /1, p. 30) and the improvement of time per distance unit. The analysis of results at the Junior III national competition can emphasize interesting aspects concerning the competition dynamics with juniors III. “The acceleration ability and the improvement of the final time” (Rață, G, 1994) are the objective of the training and the condition for obtaining good results. In presenting and analyzing the results, we deal first with the those registered in the 60m flat races in 2010 and 2011, and then with those in the 60m hurdles.

The analysis of results in girls' 60m flat

In table no.1 the data recorded by the girl athletes in the heats and the finals are presented for those girls who competed for a place on the awards podium.

The *time recorded* by the girl finalists in 2010 ranged between 7.96s and 8.22s with an average value of 8.12 s in the heats, and between 8.00s and 8.25s with an average of 8.11 s in the final race. Five athletes recorded better times in the final in comparison with the heats, values between 0 and 0.08 seconds, and three participants recorded poor final times in comparison with the heats, values ranging from -0.03 to -0.05 seconds. The mean of the progress registered by the eight finalists has a positive value (0.02s), a fact that pointed out an improvement of times in the final race, resulted from a better mobilization and attention. At the level of the heats, the first three times in the heat hierarchy were not maintained in the final. There was a single individual improvement of 0.02s with the girl ranked second in the heats, and this improvement placed her first in the final.

The *time recorded* by the eight girl finalists of the 2011 competition shows that its values ranged between 8.30 and 8.09 seconds, with an average time of 8.19s in the heats, and between 8.43 and 8.03 seconds with an average of 8.18s in the final. Four girl athletes have improved their times in the final with values that ranged from 0.03 and 0.10s, one participant has obtained the same result and three participants have regressions ranging from 0.05 to 0.13s. The girl junior who recorded the best time of the heats ranked first in the final; the girl placed second in the heats finished on the 6th place in the final, the girl that ranked third in the heats finished on the second position in the final and the girl with the 6th time ranked third in the final. The progress of the eight girl athletes has a positive value (0.01 seconds) which generally speaking is a good aspect. The top three athletes registered better times in the final than in the heats, a fact that emphasizes a better concentration and attention.

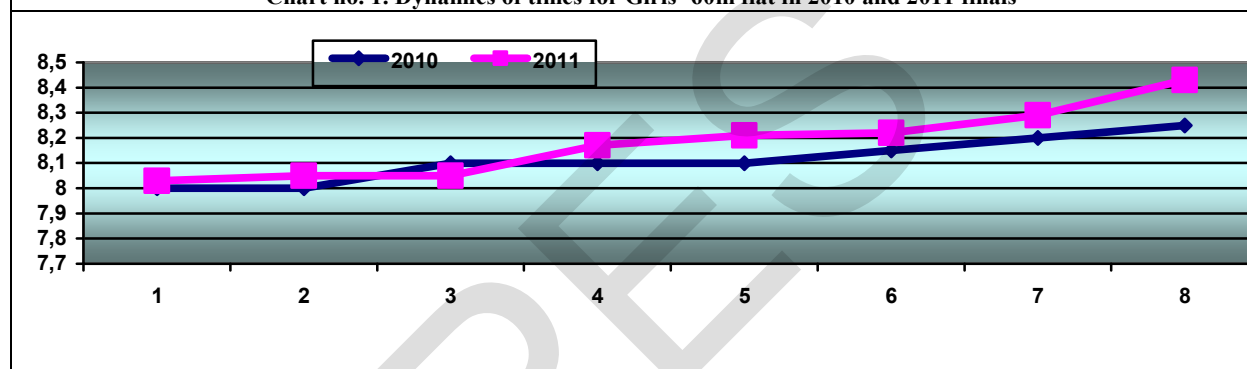
The comparison between the two years shows better results for the year 2010. In 2010 the individual values of first three athletes were of 8.00s for first place, 8.00s for second place and 8.10 s for third place with a

value of 7.96s in the heats. In 2011 the values were: 8.03s for 1st place, 8.05s for 2nd place and 8.05s for 3rd place. Therefore the value of the results in the 2011 final is lower than the value registered in 2010 (chart no.1).

Table no. 1 – Results of the 60m flat – Girls 2010 and 2011

Girls 60m flat 2010						Girls 60m flat 2011					
No.	Initials	Age	Time m/s			No.	Initials	Age	Time m/s		
			I	F	progress				I	F	progress
1	A.A-R	15	8,02	8,00	0,02	1	M.F-C	15	8,09	8,03	0,06
2	E.R-M	15	7,96	8,00	-0,04	2	R.A-C	15	8,15	8,05	0,10
3	T.M-E	14	8,05	8,10	-0,05	3	B.I-B	14	8,21	8,05	0,15
4	C.M-L	15	8,18	8,10	0,08	4	G.I-T	14	8,17	8,17	0
5	R.A-C	14	8,12	8,10	0,02	5	R.L	15	8,16	8,21	-0,05
6	G.A-M	15	8,18	8,15	0,03	6	G.E-I	14	8,12	8,22	-0,10
7	S.D-A	15	8,20	8,20	0,00	7	O.R-G	14	8,31	8,29	0,03
8	B.OM	15	8,22	8,25	-0,03	8	P.A	14	8,30	8,43	-0,13
Arithmetic mean		14,75	8,12	8,11	0,02	Arithmetic mean		14,38	8,19	8,18	0,01
Standard deviation		0,46	0,10	0,09	0,04	Standard deviation		0,52	0,08	0,14	0,10
Maximum value		15	8,22	8,25	0,08	Maximum value		15	8,31	8,43	0,15
Minimum value		14	7,96	8	-0,04	Minimum value		14,00	8,09	8,03	-0,13
test T			0,246			test T			0,214		

Chart no. 1. Dynamics of times for Girls' 60m flat in 2010 and 2011 finals



The analysis of results in boys' 60m flat

In table no.2 and chart no.2 the data recorded by the junior athletes in the heats and the finals are presented for the boys who competed in the 60m hurdles finals in 2010 and 2011.

The *time recorded* by the boy finalists in 2010 ranged between 7.45s and 7.61s with an average value of 7.55s in the heats, and between 7.35s and 7.67s with an average of 7.54s in the final race. Four out of eight athletes recorded better time in the final in comparison with the heats, values between 0.02 and 0.10 seconds, and four participants recorded inferior final times in comparison with the heats, values of -0.02 and -0.07 seconds. The mean of the progress registered between heats and final is positive (0.01 seconds), a fact that pointed out an improvement of the times in the final race, resulted from a better mobilization and attention. The first three times in the heat hierarchy were not maintained in the final but an improvement of time of the top four boys was noticed.

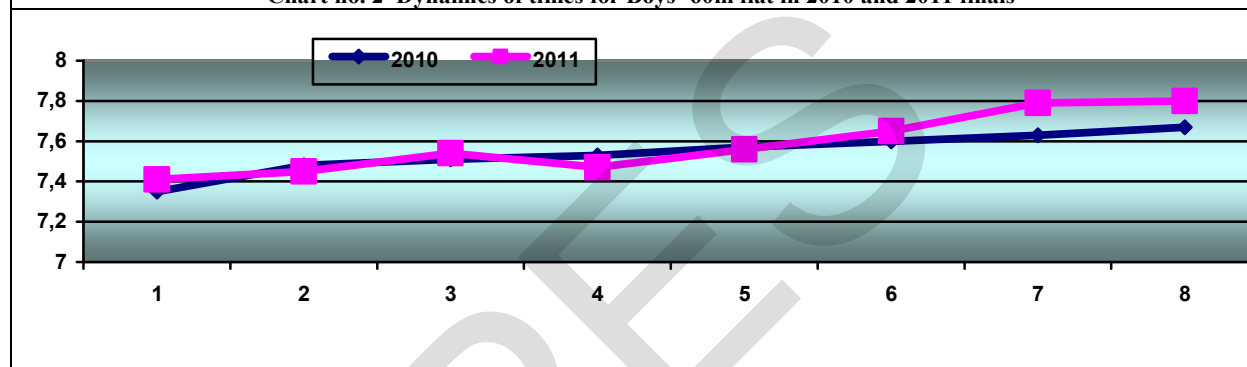
The *time recorded* by the finalists of the 2011 competition shows that the values ranged between 7,71 and 7,46 seconds, with an average time of 7,57s in the heats, and between 7,80 and 7,41 seconds with an average of 7,57s in the final. Five boy athletes have improved their times in the final with values that ranged from 0.01 and 0.07s, and three participants presented regressions ranging from -0.01 to - 0.08s. The contestants who recorded the top three results of the heats ranked top three in the final as well, but the winner was the boy placed third in the heats. The progress of the eight boy athletes has negative value (-0.01 seconds) which reflects a low mobilization for the final race. The top three athletes registered better individual times in the final in comparison to the heats, a fact that highlights an increased concentration and attention on their behalf.

Comparing the results recorded in 2010 with those from 2011 it can be noticed that the 2011 winner's result is lower than of the 2010 winner while the second and third place results are better. In 2010 the individual values of the first three athletes were 7.35s for first place, 7.48s for second place and 7.51s for third place. In 2011 the values were: 7.41s for 1st place, 7.45s for 2nd place and 7.45s for 3rd place. Therefore the value of the winner's result in the 2011 final is lower than the value registered by the 2010 winner (chart no.2).

Table no. 2 - Results of the 60m flat – Boys 2010 and 2011

Boys 60m flat 2010						Boys 60m flat 2011					
No.	Initials	Age	Time m/s			No.	Initials	Age	Time m/s		
			I	F	Dif.				I	F	Dif.
1	C.F-G	15	7,45	7,35	0,10	1	M.I-A.	15	7,47	7,41	0,06
2	U.A-	15	7,53	7,48	0,05	2	H.C-F.	14	7,46	7,45	0,01
3	F.D-V	15	7,61	7,51	0,10	3	S.C-C	14	7,46	7,45	0,01
4	C.A-R	15	7,55	7,53	0,02	4	V.D-G	15	7,54	7,47	0,07
5	P.R-D	15	7,50	7,57	-0,07	5	G.C-A	15	7,62	7,56	0,06
6	V.D-G	14	7,58	7,60	-0,02	6	M.R-F	15	7,64	7,65	-0,01
7	C.A-	15	7,60	7,63	-0,03	7	C.C-M	14	7,71	7,79	-0,08
8	P.I	15	7,61	7,67	-0,06	8	S.S-S	14	7,64	7,80	-0,16
Arithmetic mean		14,88	7,55	7,54	0,01	Arithmetic mean		14,50	7,57	7,57	-0,01
Standard deviation		0,35	0,06	0,10	0,07	Standard deviation		0,53	0,10	0,16	0,08
Maximum value		15	7,61	7,67	0,1	Maximum value		15	7,71	7,8	0,07
Minimum value		14	7,45	7,35	-0,07	Minimum value		14,00	7,46	7,41	-0,16
test T			0.473			test T			-0.178		

Chart no. 2 Dynamics of times for Boys' 60m flat in 2010 and 2011 finals



The analysis of results in girls' 60m hurdles

In table no.3 and chart no.3 the data recorded by the girl athletes in the heats and the finals are presented for those girls who competed for a place on the awards podium.

The *time recorded* by the girl finalists in 2010 ranged between 9.39s and 10.12s with an average value of 9.87 s in the heats, and between 9.36s and 10.1s with an average of 9.82s in the final race. Six athletes recorded better time in the final in comparison with the heats, values between 0.02 and 0.26 seconds, one participant registered the same time and other one a weaker result (with 0.25s). The mean of the progress registered by the eight finalists has a positive value (0.05s), a fact that pointed out an improvement of the times in the final race, resulted from a better mobilization and attention. At the level of the heat races, the top three times in the heat hierarchy were not maintained in the final. The girl sprinter with second performance in the heats registered a time with 0.25s lower in the final, thus losing the chance for a medal.

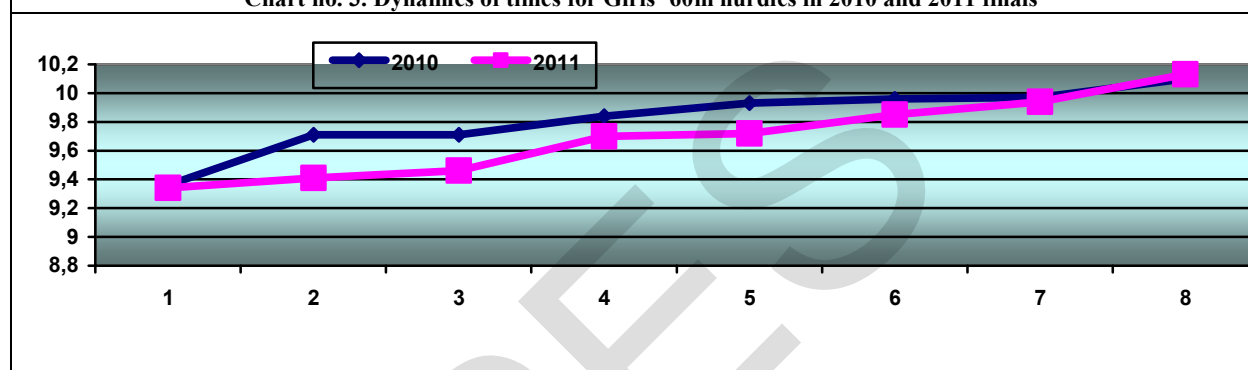
The *time recorded* by the eight girl finalists of the 2011 competition shows that their values ranged between 10.01 and 9.32 seconds, with an average time of 9.74s in the heats, and between 10.13 and 9.34 seconds with an average of 9.69s in the final. Four girl athletes have improved their times in the final with values that ranged from 0.09 and 0.31s, and four participants have regressed with -0.09s to -0.31s. The girl junior who recorded the best time of the heats ranked first in the final; the girl placed second in the heats finished on the 3rd place in the final, the girl that ranked third in the heats finished on the 5th position with a regression of -0.16 seconds. The average progress of the eight girl athletes is a positive value (0.05 seconds). The top three athletes registered better times in the final than in the heats, a fact that emphasizes a better concentration and attention.

The comparison between the 2010 results and the 2011 results shows better results for the year 2011. In 2010 the individual values of the first three athletes were of 9.36s for first place, 9.71s for second place and 9.71s for third. In 2011 the values were: 9.34s for 1st place, 9.41s for 2nd place and 9.46s for 3rd place. Therefore the value of the results in the 2011 final is better than the value registered in 2010 (chart no.3).

Table no. 3. Results of the 60m hurdles – Girls 2010 and 2011

Girls 60m hurdles 2010						Girls 60m hurdles 2011					
No.	Initials	Age	Time m/s			No.	Initials	Age	Time m/s		
			I	F	Dif.				I	F	Dif
1	L.G-M	15	9,39	9,36	0,03	1	B.I-B	14	9,32	9,34	-0,02
2	J. D-I	15	9,74	9,71	0,03	2	G.E-I	14	9,72	9,41	0,31
3	M. R-V	14	9,97	9,71	0,26	3	M.R-V	15	9,55	9,46	0,09
4	M-, C- E	15	9,59	9,84	-0,25	4	M.A-M	15	10,01	9,70	0,31
5	N.A- M-	15	9,93	9,93	0	5	A.A-M	14	9,56	9,72	-0,16
6	T.V-	14	10,09	9,96	0,13	6	C.A.	14	9,97	9,85	0,12
7	F.D-S-	15	10,12	9,97	0,15	7	C.S-I	14	9,90	9,94	-0,04
8	B.O-A	15	10,12	10,1	0,02	8	I.D-M	14	9,92	10,13	-0,21
Arithmetic mean		14,75	9,87	9,82	0,05	Arithmetic mean		14,25	9,74	9,69	0,05
Standard deviation		0,46	0,27	0,23	0,15	Standard deviation		0,46	0,25	0,28	0,20
Maximum value		15	10,12	10,1	0,26	Maximum value		15	10,01	10,13	0,31
Minimum value		14	9,39	9,36	-0,25	Minimum value		14	9,32	9,34	-0,21
test T			0.880			test T			0.725		

Chart no. 3. Dynamics of times for Girls' 60m hurdles in 2010 and 2011 finals



The analysis of results in boys' 60m hurdles

As far as the *time recorded* by the boy finalists in 2010 is concerned (table no.4 and chart no.4) it ranged between 8.97s and 9.76s with an average value of 9.47s in the heats, and between 8.86 s and 9.71s with an average of 9.42s in the final race.

The individual results show that the top three participants in the heats maintained their positions in the final, and the athlete ranked second in the heats finished only third in the final. Five athletes improved their times in the final with values between 0.11 and 0.25 seconds, and three participants recorded inferior final times in comparison with the heats, with values ranging from -0.06 to -1.75 seconds.

The *time recorded* by the eight finalists of the 2011 competition shows that the values ranged between 8.93 and 9.44 seconds, with an average time of 9.10s in the heats, and between 9.36 and 8.80 seconds with an average of 9.02s in the final. Five boy athletes have improved their times in the final with values that ranged from 0.08 to 0.27s, and three participants have registered regressions ranging from -0.02 to -0.11s.

The hierarchy of the top three finalists was not identical to the heats ranking. First place was obtained by the contestant who finished third in the heats, second place was obtained by the junior who ranked second in the heats, and third place was obtained by the contestant who finished 5th in the heats.

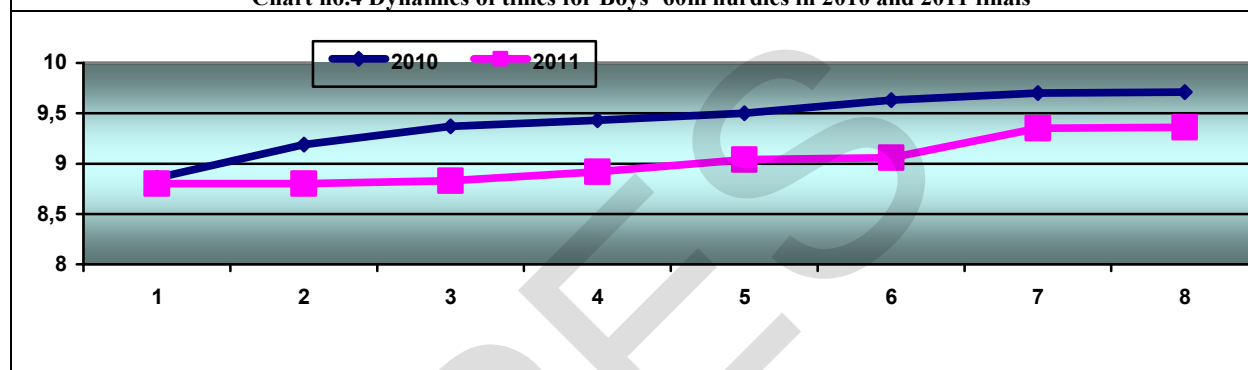
The average progress of the eight boy athletes has positive value (0.08 seconds). The top three athletes registered better individual times in the final in comparison to the heats, a fact that highlights an increased concentration and attention on their behalf.

Comparing the results recorded in 2010 with those from 2011 it can be noticed that the 2011 results are better. In 2010 the individual values of the first three contestants were 8.86s for first place, 9.19 s for second place and 9.37s for third place. In 2011 the values were: 8.80 s for 1st place, 8.80 s for 2nd place and 8.83s for 3rd place. Therefore the values achieved by the finalists of the 2011 indoor season are better than the value registered in 2010 (chart no.4).

Table no. 4. Results of the 60m hurdles – Boys 2010 and 2011

Boys 60m hurdles 2010						Boys 60m hurdles 2011					
No.	Initials	Age	Time m/s			No.	Initials	Age	Time m/s		
			I	F	Dif				I	F	Dif
1	M.C-F	15	8,97	8,86	0,11	1	O.R-G	15	8,95	8,80	0,15
2	D.V.	15	9,40	9,19	0,21	2	S.F-A	15	8,94	8,80	0,14
3	L.C.	15	9,31	9,37	-0,06	3	C.M-V	14	9,10	8,83	0,27
4	A.I.	14	9,59	9,43	0,16	4	B.S	15	9,07	8,92	0,15
5	F.D-V	15	9,76	9,50	0,26	5	N.C-F	14	8,93	9,04	-0,11
6	S.C-F	15	9,76	9,63	0,15	6	A.I.	15	9,02	9,06	-0,04
7	O. A	14	9,56	9,70	-1,56	7	D.M-A	14	9,33	9,35	-0,02
8	O.R-G.	14	9,38	9,71	-1,75	8	LS-A	15	9,44	9,36	0,08
Arithmetic mean		14,63	9,47	9,42	-0,31	Arithmetic mean		14,63	9,10	9,02	0,08
Standard deviation		0,52	0,26	0,29	0,84	Standard deviation		0,52	0,19	0,23	0,13
Maximum value		15	9,76	9,71	0,84	Maximum value		15	9,44	9,36	0,27
Minimum value		14	8,97	8,86	-1,75	Minimum value		14,00	8,93	8,80	-0,11
test T			0.597			test T			1.749		

Chart no.4 Dynamics of times for Boys' 60m hurdles in 2010 and 2011 finals



Discutions

Coaches involved in the athletics training must take into account the following constants: biomechanical constants based on the laws of physics, biological constants rooted in physiology and psychology which respect “the scientific principles in transmitting the techniques while preserving the complex structure of individual personality” (Ed Jacoby/Bob Fraley, 1997, p. 12), structure that is highlighted mainly in competitions. In 1991 T. Ardelean (p.28) considers that speed is a “potential quality and its valorisation depends on each specialist teacher’s practical and methodological mastery. Speed is a psychic and motor ability that depends on the physiological and psychological hereditary predispositions, the structures and proportions of body segments, the strategy of training and on each athlete’s ability to adapt to specific conditions of each competition phase. “The pace of running at high speed levels is relatively independent on the general and specific training” (M.V. Zaïorski, 1972), and on the competition experience gained in several sports events. The analysis of participation in competitions is a source of information on the athletes’ opportunities of performing and adapting. The sports performance represented by the time registered or by the place obtained in the race shows the modality in which an athlete manifests the performing technique at high speed levels and the way in which this can be influenced by attention, concentration and volition. Knowing the dynamics of time registered in the final races of the Junior III National Athletics Indoor Championships allows coaches and club managers to better undertake the selection, preparation and training process. “The analysis of performance carried out last season” (Rață, B.C, 2008 /2, p. 101) is a starting point in elaborating the work programme, and in predicting the possibilities of performance.

The average time registered in *girls’ 60m flat final* in 2010 (8.11 seconds) is better than the one in 2011 (8.18 seconds), and the average of standard deviation highlights that the group of eight finalists in 2010 (0.04) is more homogenous than the group in 2010 (0.12). Very interesting is the fact that of the two finalists of the year 2010 who were in their first year of junior level (14 year girls) only one reaches the podium in 2011 and does not win the title although she has a great advantage in terms of performance and the other one does not appear in competitions. Of the 14 year-old twenty-one contestants who participated in 2010 only five can be found in the 2011 competition and only two reach the podium. This aspect demonstrates the lack in continuity and losses in time. The mean of times achieved *in boys’ 60m flat final* in 2010 (9.42 seconds) is better than in 2011 (9.02 seconds), and the values of standard deviation pointed out that the group of the 2010 finalists (0.29) is less uniform than in 2011 (0.23). Very interesting is the fact that in 2011, one out of the 2010 eight finalists was found with a better performance but he did not reach the podium. Only five out of the fifteen 14 year-old

contestants in the year 2010 participated in the 2011 competitions and only one of them ranked in the top eight finalists (4th place). This fact indicates a discontinuity and significant losses during the training.

The mean of times achieved in *girls' 60m hurdles final* in 2010 (9.82 seconds) is lower than in 2011 (9.69 seconds), and the values of standard deviation pointed out that the group of the 2010 finalists (0.05) is as uniform as in 2011 (0.05). Very interesting is the fact that in 2011, only one out of the 2010 eight finalists was found with a better performance and obtained the same place on podium. In 2003, Liliana Mihăilescu (p.25) presents an average time of 9.40s in girls' 60m hurdles race, time recorded within a comparative study on juniors III, juniors II and juniors I, a value significantly higher than in 2010 and 2011. Of the three 14 year-old girl juniors participating in the 2010 national contest, only one is found in the 2011 contest and she ranked third in both years. The mean of times achieved in *boys' 60m hurdles final* in 2010 (9.82 seconds) is lower than in 2011 (9.69 seconds), and the values of standard deviation pointed out that the group of the 2010 finalists (0.05) is as uniform as in 2011 (0.05). Very interesting is the fact that in 2011, two out of the 2010 eight finalists were found with better performances. The boy ranked 6th in 2010 with a performance of 9.71s finished first in 2011 with 8.90s, and the one who ranked fourth in 2010 with 9.43s finished sixth in 2011 final with 9.06s. Only two out of the five 14 year old contestants in the year 2010 participated in the 2011 competitions and ranked in the top eight finalists.

The question is: "What is the reason for these poor results and losses of time?" The answer is found in conditions increasingly harder, in the lack of convictions, in the existence of coaches with deficiencies in their professional training, or the presence of many other temptations. The small number of competitors can be explained by the inexistence of proper training conditions (track athletics halls) in most cities.

Regarding the "t" value from Fischer's table, situated between 0.214 and 1.749 in the four events, they are significant for the two compared events

Conclusions

The data analysis for the participants in the Athletics National Indoor Championships in the 2010 and 2011 seasons highlighted some interesting aspects.

1. The time registered by the winner of the girls' 60m sprint at the 2010 final (8.00 s) is better than the time registered in the 2011 final (8.03s).
2. The time registered by the winner of the boys' 60m sprint at the 2010 final (7.35 s) is better than the time registered in the 2011 final (7.41s).
3. The time registered by the winner of the girls' 60m hurdles at the 2011 final (9.34 s) is better than the time registered in the 2010 final (8.03s).
4. The time registered by the winner of the boys' 60m hurdles at the 2011 final (8.80s) is better than the time registered in the 2010 final (8.86s).
5. The hypothesis that "the dynamics of results registered each year with the Juniors III at the sprint events is a positive one" was not fully confirmed.
6. Year after year there are a lot of retirements of athletes therefore there is a lack of continuity with this age category concerning the training and competition activity.
7. Those athletes who get the best performance in the heats are not always those who get first place in the final, an issue that requires more special training throughout the entire season.

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