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ORIGINAL RESEARCH

STUDY CONCERNING THE ELABORATION OF CERTAIN ORIENTATION MODELS AND THE INITIAL SELECTION FOR SPEED SKATING

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In realizing this study I started from the premise that, by elaborating certain orientation models and initial selection for the speed skating and their application will appear superior results, necessary results, taking into account the actual evolution of the high performance sport in general and of the speed skating, in special.

The target of this study has been the identification of an orientation model and a complete initial selection that should be based on the favorable aptitudes of the speed skating. On the basis of the made researched orientation models and initial selection has been made, things that have been demonstrated experimental that are not viable, the study starting from the data of the 120 copies, the complete experiment being made by 32 subjects separated in two groups, one using the proposed model and the other formed from subjects randomly selected.

These models can serve as common working instruments both for the orientation process and for the initial selection one, being able to integrate in the proper practical activity, these being used easily both by coaches that are in charge with the proper selection of the athletes but also by the physical education teachers or school teachers that are in contact with children of an early age.

Rezumat

În realizarea acestui studiu am plecat de la premiza că, prin elaborarea unor modele de orientare și selecție inițială pentru patinajul viteză și aplicarea acestora vor apărea rezultate superioare, rezultate necesare, ținând cont de evoluția actuală a sportului de înaltă performanță în general și a patinajului viteză, în special.

Ținta acestui studiu a fost identificarea unui model de orientare și selecție inițială complet care să fie bazat pe aptitudinile favorizante patinajului viteză. Pe baza cercetării efectuate s-au realizat modelele de orientare și selecție inițială, care au fost demonstrate experimental că sunt viabile, studiul plecând de la datele a 120 de copii, experimentul complet făcându-se pe 32 de subiecți împărțiți în două grupe, una folosind modelul propus și cealaltă formată din subiecți selectați aleator.

Aceste modele pot servi ca instrumente de lucru comune atât pentru procesul de orientare cât și pentru cel de selecție inițială, putându-se integra în activitatea practică propriu-zisă, acestea fiind folosite cu ușurință atât de antrenorii care se ocupă cu selecția propriu-zisă a sportivilor dar și de profesorii de educație fizică sau învățătorii care au contact cu copiii de vârstă timpurie

Key words: model, orientation, initial selection, speed skating.

Introduction

The high performance sport has known lately an “explosive” development at the level of all components. If until not too long ago specialists had in their attention in special the proper training process, in present they have completed this optic, enlarging it towards the sport initial process and that is the orientation process and the initial selection. These two processes represent a very important subject and a very debated one lately because through them we can “choose” those athletes that meet the necessary requirements for practicing speed skating.

The performance sport domain is a performance one by its own name. Even if speed skating is a very beautiful sport, we notice that, lately, the children’s interest for this sport is lowered, the number of engaged athletes being relatively reduced in comparison with 20 years ago. With all these, the obtained results at the junior level are good fact that made me believe that there are human resources that have qualities suitable for practicing speed skating, just that they are not discovered in time after well established rules, the selection being made simply at random.

Material and methods

This research had as main purpose the solving of certain problems that condition the “choosing”, formation and training of youth in speed skating, also the elaboration of certain orientation models and initial selection, models that action as a connection element between the two processes, being actually a common working instrument.

The study that I realized tries to solve the mentioned problems and it started from certain questions that have their roots in the practical activity and that have raised from the researched phenomenon observation also from the discussions with the specialists from the domain and not only.

In realizing this study I started from the premises that, speed skating, as the majority of sport branches, is susceptible to be perfected by the continuous analysis of its systematic components and that, orientation and initial selection, also the differentiate treatment of the proper selection must be developed in concordance with the exigency of the models at a formative and performance level [1].

The hypothesis from which this study has started is the following: I consider that, if we make an orientation model and a complete initial selection that can be based on the favorable aptitudes and which to assure a connection between the two mentioned processes, then the results of the athletes will substantially increase reducing at the same time also the costs that we have then with the athletes training that later on prove not to be suitable for speed skating.

The unitary selection system used in speed skating is 30 years old needing an update at the majority of its components because of the shown modifications at the population level having at the base the changes made by the actual social evolution.

We can say that, according to the specialty literature, of the obtained data through the Internet, coaches’ documents with whom we have collaborated, of the medical charts also in special of the made study by us, we succeeded the elaboration of certain orientation models and initial selection that can serve as common working instruments both for the orientation process and for the initial selection, being able to integrate in the proper practical activity.

I have to remind that in our country there is no orientation model and initial selection very complex, the existent model referring to just a few parameters (waist, weight, vital capacity) the rest being treated as generalities – without clear specifications over the values. That is why, the dimensions of the below presented models will have only one type of values and that is the statistic values obtained by us, not being any comparison terms towards other type of model.

The orientation model and the initial selection proposed has been realized through the study of 120 children of Ploiesti (60 boys and 60 girls) with an age of approximately 7 years old (age at which we practically make the selection in speed skating) and it is composed from the indicators and the dimensions of the anthrop-motor model and of the favorable aptitudes.

From these 120 children we have selected the first 10 boys and the first 10 girls for the experimental group in a descending order according to the obtained score at the sport tasks also at the anthrop-motor parameters considered as favorable and 10 boys and 10 girls selected randomly for the control group.

From the 20 boys and 20 girls the experiment has been made with 16 boys and 16 girls divided into two experiment groups and two control groups because 4 boys and the same girls did not show interest since the first training or have abandoned during practice.

From the used research methods and techniques we remind the bibliographic study, the observation method, the measurements and recordings method, the statistic-mathematic method, the graphic and experimental ones.

The experiment was developed in the period 2005-2006 having at the base more proper studies and has consisted in a series of measurements that are to be found as selection models in the tables presented above, being interpreted as arithmetic mean of the measured values \pm their quadratic medium deviation. On the basis of the presented the division on groups has been made (experiment and control - random) of the subjects, the training of the experimental groups being made through the implementation of the global and operational didactic projects.

Results

The anthrop-motor model is formed of the following parameters' values: waist (T), weight (Gr.), bust (Bst.), biacromial diameter (D.Bc.), bitrohanterian diameter (D. Btr.), the length of the superior limbs (L.M.Sup.), the length of the inferior limbs (L.M.Inf.), the thoracic perimeter (Pt.), the thoracic perimeter in deep inhale (Pi.), the thoracic perimeter in forced exhale (Pe.), the abdominal perimeter in orthostatic (Pa.) and the abdominal perimeter in dorsal decubit (Pal.).

The motor and psycho-motor aptitudes model contains the following parameters: the shifting speed (30 m), the explosive force of the inferior limbs (S.L.L. – jump in length from the standing position with take off from both legs), the specific explosive force of the inferior limbs (S.L. Pa. – 3 lateral consecutive jumps from skating position), the inferior limbs mobility in anterior plan (Mb.), static equilibrium (Ech.), resistance in force regime of the abdominal musculature (Abd.), coordination – speed (T.P. – the test in the square), general motor coordination (C.M.G. – Matorin test), resistance (Rez. – resistance run on 600m).

The resulted values from the study are being presented in the tables 1 and 2.

Table 1. The anthrop-motor model

<i>Predispositions or favorable aptitudes</i>	<i>Test Measurement unit</i>	<i>Statistic values</i>	
		<i>boys</i>	<i>girls</i>
Waist (T.)	cm.	126,2 \pm 4,1	124,8 \pm 4,7
Weight (Gr.)	Kg.	25,2 \pm 2,6	24,8 \pm 3,8
Bust (Bst.)	cm.	67,9 \pm 2,1	68,2 \pm 2,7
Biacromial diameter (D.Bc.)	cm.	26,6 \pm 1,5	26,6 \pm 1,4
Bitrohanterian diameter(D.Btr.)	cm.	21,29 \pm 1,4	21,2 \pm 1,4
The superior limbs length (L.M.Sup.)	cm.	54,9 \pm 2,6	53,2 \pm 2,5
The inferior limbs length (L.M.Inf.)	cm.	58,2 \pm 2,5	56,6 \pm 3
Thoracic perimeter (Pt.)	cm.	61,2 \pm 2,4	60,8 \pm 3,9
Thoracic perimeter in deep inhale (Pi.)	cm.	65,2 \pm 2,5	64,4 \pm 3,9
Thoracic perimeter in forced exhale (Pe.)	cm.	59,2 \pm 2,3	58,4 \pm 3,5
Abdominal perimeter in orthostatism (Pa.)	cm.	55,7 \pm 2,9	55,2 \pm 4,1
Abdominal perimeter in dorsal decubit (Pal.)	cm.	53,3 \pm 3,1	53,1 \pm 4,2

Table 2. The model of the motor and psycho-motor aptitudes

<i>Predispositions or favorable aptitudes</i>	<i>Measurement unit/Test</i>	<i>Statistic values</i>	
		<i>boys</i>	<i>girls</i>
The shifting speed (30 m)	The consumed time is measured for the made distance, in seconds	6,5 \pm 0,7	7,0 \pm 0,5

The explosive force of the inferior limbs (S.L.L.)		Is measured in cm.	108,1±10,9	96,5 ± 10,5
The specific explosive force of the inferior limbs (S.L.Pa.) (left-right)		Is measured in cm.	326,8 ± 12,9	310,9 ± 19,7
The inferior limbs mobility in anterior plan (Mb.)		Is measured in cm.	-1,24 ± 4,1	2,9 ± 4,3
Static equilibrium (Ech) left foot right foot		Is measured in seconds.	5,1 ± 2,3	5,9 ± 3
Resistance in force regime of the abdominal musculature (Abd.)		The maximum repetitions numbers is put down	46,1 ± 10,9	33,7 ± 13,7
Coordination - speed (T.P.)	seconds	The consumed time is measured for making the test, in seconds	21,5 ± 6	19,3 ± 5,1
	mistakes	The mistakes number is being measured made during the test	2,6 ± 1,2	2,8 ± 1,4
General motor coordination (C.M.G.) (left-right)		Matorin	242,4 ± 28,45	243,1 ± 32,1
Resistance (Rez.)		The consumed time is measured for the made distance, in seconds	205,5 ± 12,45	227,5 ± 15,55

Further on, we present the means at the specific tasks, after a year of specific training, also the percentage increase of the favorable aptitudes of the two groups (experimental and control) in order to argue with concrete data the proposed models values.

Specific tasks

Boys

- Ice 250 m: the experiment group: obtained result - 37,93", control group: obtained result - 42,92"

- Ice 500 m: the experiment group: obtained result – 80,77", control group: obtained result – 88,75"

- Simulator (board): the experiment group: obtained result – 26,75 steps, control group: obtained result – 22,5 steps.

Girls

- Ice250 m: the experiment group: obtained result – 41,11", control group: obtained result – 45,2"

- ice 500 m: the experiment group: obtained result – 86,31", control group: obtained result – 93,5"

- Simulator (board): the experiment group: obtained result – 23,37 steps, control group: obtained result – 20,12 steps.

Also, we present the percentage increase of the favorable aptitudes of the two groups (experimental and control), the obtained results at the motor and psycho-motor aptitudes being improved substantially at the experimental group in comparison with the control one, the percentage increase of the two groups can be seen in the table 3.

Table 3. The percentage increase of the experimental and control groups

Motor and psycho-motor aptitudes	Experimental group %		Control group %	
	boys	girls	boys	girls
Shifting speed	7,51	7,44	3,74	3,84
Specific explosive force of the inferior limbs (left/right)	7,25 / 7,06	6,91 / 7,11	4,73 / 4,33	4,39 / 4,1
General resistance	8,15	6,95	3,08	3,7
General motor coordination (left/right)	23,33 / 21,93	18,3 / 18,5	12,4 / 11,96	10,34 / 11,12
Static equilibrium (left/right)	135,5 / 119,7	133,3 / 165	90,5 / 65,38	74,08 / 90,94
Coordination-speed (sec./mistakes)	52,97 / 63	33,63 / 108,7	13,98 / 28,57	14,69 / 39,1
The explosive force of the inferior limbs	10	10,05	5,39	6,02
Abdominal muscles strength	15,26	37,61	12,65	14
Mobility	225	41,2	88	15,08

Knowing that the in training of the experimental groups have been introduced standard didactic strategies, respecting the praxicological circuit model: instructional objectives – contents – strategies – evaluation instruments, also of the non-standard strategies (adapting a teaching style at the characteristics of the athletes with which we are working, the subjects' tolerance at effort, the creative capacity of the coach, the flexibility at the pupils' behavior, feed-back), this thing has had as result the performance increase, of course of the basis of orientation methods and selection presented above. Also we must mention that the values changes at the anthrop-motor aptitudes have been influenced mainly by the increase and development laws specific to age and less to the made training.

Table 4. Statistic calculus of the favorable aptitudes - boys

Favorable aptitudes <i>Boys</i>	Experiment group		Control group		Groups comparison experiment-witness			
	ΔM	t_{i-f}	ΔM	t_{i-f}	ΔM_i	ΔM_f	t_i	t_f
V.D.	0,45	6,87	0,23	6,15	-0,06	0,16	-0,34	1,10
S.L.L.	-11,1	-21,6	-6,5	-8,88	9,25	4,63	0,97	2,02
S.L.Pa. left	-24,2	-11,2	-15,7	-11	-1,38	-9,88	-0,37	-3,15
S.L.Pa. right	-23,9	-11,1	-14,5	-12,4	-3	-12,4	-0,51	-2,04
Mb.	-2,25	-6,36	-0,88	-4,25	-0,01	-1,38	-0,01	-0,62
Ech. Left	-8,12	-14,8	-4,88	-7,63	-0,63	-3,88	-0,86	-5,81
Ech. right	-8,38	-9,46	-4,25	-5,34	-0,5	-4,63	-0,28	-4,63
F. abd	-9,75	-7,39	-5,88	-7,24	-17,5	-21,4	2,27	-3,09
Rez.	15,38	12,42	8,75	6,92	-8,75	-2,13	-0,65	-2,02
Coord – V. sec.	7,5	3,8	2,5	4,68	-1,25	3,75	-0,43	2,51
Coord – V. gr.	0,63	1,93	0,5	1,88	0,63	0,75	0,8	1,82
C.M.G. left	-56,7	-9,33	-30,6	-9,4	3,63	-22,5	0,22	-2,28
C.M.G. right	-51,8	-9,29	-29,4	-13	9,63	-12,7	0,63	-1,02
Waist	-4,06	-15,7	-4,06	-11,3	-0,25	-0,25	-0,09	-0,1
L.M. Inferior	-2,91	-11,3	-2,81	-11,3	-0,78	-0,88	-0,4	-0,47

Table 5. Statistic calculus of the favorable aptitudes - girls

Favorable Aptitudes <i>Girls</i>	Experiment group		Control group		Groups comparison experiment-witness			
	ΔM	t_{i-f}	ΔM	t_{i-f}	ΔM_i	ΔM_f	t_i	t_f
V.D.	0,46	6,56	0,25	7,64	0,13	0,34	0,45	1,53
S.L.L.	-10,9	-19,8	-6,13	-12,8	-6,63	-11,4	-0,97	-1,7
S.L.Pa. left	-22,6	-10,9	-14,2	-13,6	-3,5	-11,9	-0,39	-1,7
S.L.Pa. right	-23,1	-12,9	-13,2	-15	-2,38	-12,2	-0,29	-1,7
Mb.	-2,06	-4,83	-1	-4	1,63	0,56	0,82	0,31
Ech. Left	-9	-9	-4,63	-6,13	-0,5	-4,88	-0,18	-2,3
Ech. Right	-8,25	-18,2	-5,13	-7,4	0,63	-2,5	0,49	-2,55
F. abd	-13,1	-6,76	-6	-7,48	8	0,88	1,16	0,13
Rez.	14,1	8,72	8	9,47	6,88	13	0,54	1,12
Coord – V. sec.	4,5	3,63	2,13	3,32	-1,25	1,13	-0,63	1,76
Coord – V. gr.	1,5	3,55	0,88	3,86	0,25	0,88	0,33	1,82
C.M.G. left	-50	-9,35	-28,6	-6,5	3,63	-17,7	0,19	-1,17
C.M.G. right	-45,6	-7,24	-31,2	-4,68	32,13	17,75	2,31	1,98
Waist	-4,19	-14,8	-4,06	-13,9	-1,81	-1,94	-0,64	-0,75
L.M.Inferior	-2,94	-13,3	-2,88	-13,9	-0,88	-0,94	-0,5	-0,55

From a statistic point of view, the critical values for the tables 4 and 5 unilateral with d.f. = 7 and $\alpha=0,05$ is of 1,894, and bilateral d.f. =14, $\alpha=0,05$ is of 1,7.

From the above presented tables, also from the proper data (that because of the space lack they were not presented) we can say that, although the medium level at the big majority of the characteristics and measured aptitudes increases from case to case, outside the significant proved differences by the test t, respective an increase of the recorded levels especially at the experimental group, we notice in addition a decrease of the spreading based on the values constantly positive of the differences between the quadratic medium deviations at the big majority of the studied parameters. We can conclude a stabilization of the mentioned variation characteristics indicators, especially at the experiment group. From the respective data analysis we can draw the conclusion that, according to the favorable aptitudes and of the proposed models by us, completed by the standard didactic strategies and non-standard adaptive at the age particularities, the experimental group had an evolution superior to the control group.

So, we can say (through the test t – Student, ΔM – the means difference and from the obtained results) that the orientation models and the initial selection proposed by us proved to be efficient.

Discussions

Based on the problems studies of the orientation processes, initial selection and children's instruction at an early age, also of our research results, we suggest the coaches and teachers that are in charge with the selection and training of the speed skaters to be aware that there is a clear delimitation of the orientation process in comparison with the initial selection process, also to use scientifically the criteria for the athlete's perspective evaluation that just starts the training, quitting the training by which, at the beginners, it is followed not children's selection that have certain qualities for practicing the respective sport branch, but the completion of the athletes groups. In this case we do not take into account any selection norm, the groups being completed with many athletes without any perspective.

Also, there must be selected only those children that have an optimum selection age and a good health, the sanguine factor must be irreproachable at the level of the sport orientation process and especially at the level of the initial selection.

Through the orientation process a high number of susceptible of high performance elements are being directed. Among these, the speed skating coaches will be able to choose the most representative children, that have real chances to become great champions.

At the same time, we must be aware of the fact that the orientation and selection problem in sport is tightly connected with the mass sport development. The mass character of the sport must be the base principle of the physical education and sport system.

Having at the base the orientation and initial selection models, to re-orientate those children that have been selected for practicing speed skating but which do not accomplish the imposed requirements during training. These models must be in concordance with the growth laws also the increase and development periods, with the specific particularities to each period, only like this the future training being able to developed after scientific criteria, inevitably leading to superior results, of course taking into account the other factors that condition performance.

Conclusions

1. Obtaining the superior sport performances during the speed skating is conditioned by certain bio-psycho-motor profiles of the children, in which it must overlap over the genetic heritage and the favorable aptitudes, processed and perfected in concordance with the athletes age, fact that will have as a result the substantial increase on every formative level of the athletes that are in these profiles.

2. The athletes' selection should be realized according to certain clear and well functional bio-psycho-motor models that should action as a common working instrument for the both processes (orientation and initial selection) working instrument with which to operate both in schools and in sport clubs.

3. Realizing the selection without taking into account the favorable aptitudes is a mistake that must be overcome very firmly, because by realizing a random selection superior result could not show only by accident, the training costs of the other athletes not being able to be justified.

4. The medium values of certain favorable aptitudes can be completed through other aptitudes or qualities considered compensatory such as: will, conscience during practice, discipline, courage, concentration capacity, the formation of ice sense etc.

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