

SPECIALIZED ORIENTATION FOR MEN'S LONG MIDDLE DISTANCE ATHLETES AGED 13 – 15

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Abstract:

With the necessary scientific methods, we have established the classification standards, determined the influential proportion of the criteria groups on the performance of athletes, making orientations of sports for men's long middle-distance athletes at the age of 13 - 15.

Key words: Orientation of specialization, men's long middle-distance athletes.

INTRODUCTION

The orientation of specialization in sports is a prominent and important task in the training high-level athletes. Making scientific and effective orientation in the initial stage of specialization will create favorable condition for the development of many young talents, save a lot of time as well as training costs, contributing to improving the efficiency of athlete training in general and long middle-distance athletes at the age of 13 - 15 in particular.

RESEARCH METHODS

In the research, we have used methods of interview, medical test, pedagogical examination and mathematical statistics.

RESULTS AND DISCUSSION

1. Selection criteria for selecting men's long middle-distance athletes at the age of 13 - 15

Based on the analysis of references and expert interviews, the study has selected 23 out of 63 criteria with a very important approved rate of $> 70\%$ which ensures high reliability and informative characteristic with strong relation $r_{\text{calculation}} = 0.809 - 0.964 > r_{\text{table}} = 0.8$ (criteria are in the tables).

2. Development of standards for selecting men's long middle-distance athletes at the age of 13 - 15

Based on the selected criteria (exceptionally,

the study has not developed the BMI index because of it have assessment gap not corresponding with one direction of variation-as small or large as possible), we have tested 88 male athletes at the age of 13 – 15. At the same time, we have developed the classification standards for men's long middle-distance athletes at the age of 13 – 15 following the rule of $\pm 2\delta$. Results are in Tables 1, 2, 3.

3. Determination of influential proportion of criteria on athlete's performance

From results of the development of the classification standards for selecting athletes, we have continued to study the influential proportion by the groups of criteria on the athlete's performance. The results are in Table 4.

Results in Table 4 show that the factors of morphology, function and physical strength has influenced and controlled the athlete's performance. However, the influential level of factor groups is different. Specifically, the morphological factors have the lowest influential level, next is the functional group and the highest level is the physical strength factors, the older the athlete is, the higher the influential level is. As for the morphological factors, the older the athlete is, the lower the influential level is. This is the basis for the sports-oriented classification for athletes.

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Proper sports orientation will help athletes to promote their best abilities to achieve the highest sports achievements

Table 1. Classification standards for selecting men's long middle-distance athletes at the age of 13

No	Criteria	Very good	Good	Average	Weak	Poor
1	Foot length H/ Height (%)	>60.75	56.11-60.74	46.83-56.10	42.19-46.82	<42.19
2	Foot length H - Foot length C (cm)	>20.81	19.13-20.80	15.77-19.12	14.09-15.76	<14.09
3	Foot length Achilles (cm)	>30.53	28.36-30.52	24.02-28.35	21.85-24.01	<21.85
4	Relative vital capacity (ml/kg)	>70.63	65.13-70.62	54.13-65.12	48.63-54.12	<48.63
5	Relative VO2max (ml/kg/min)	>58.65	54.83-58.64	47.19-54.82	43.37-47.18	<43.37
6	Respiratory quotient	>1.14	1.13-1.139	1.11-1.129	1.1-1.109	<1.109
7	Pulse oxygen index (ml/pulses)	>15.49	14.72-15.48	13.18-14.71	12.41-13.17	<12.41
8	Hemoglobin (g/l)	>147.77	141.11-147.76	127.79-141.1	121.13-127.78	<121.13
9	Max Blood lactate concentration (mmol/l)	>14.49	13.36-14.48	11.1-13.35	9.97-11.09	<9.97
10	Qsmax (ml)	>113.75	108.6-113.74	98.3-108.59	93.15-98.29	<93.15
11	Qsmax/Qs stability	>2.41	2.22-2.40	1.84-2.21	1.65-1.83	<1.65
12	Test open-loop control Landolt (bit/s)	>59.10	53.4-59.09	42.0-53.39	36.3-41.99	<36.3
13	Single reflection (ms)	<224	249.2-224.01	299.6-249.21	324.8-299.61	>324.8
14	30m high speed run (s)	<4.30	4.75-4.31	5.65-4.76	6.10-5.66	>6.10
15	100m starting block (s) (s)	<13.38	14.84-13.39	17.76-14.85	19.22-17.77	>19.22
16	600m run (s)	<103.88	115.44-103.89	138.56-115.45	150.12-138.57	>150.12
17	800m run (s)	<149	165.5-149.01	198.5-165.51	215-198.51	>215
18	1500m run (min)	<5.01	5.29-5.02	5.85-5.30	6.13-5.86	>6.13
19	3000m run (min)	<11.29	12.36-11.3	14.5-12.37	15.57-14.51	>15.57
20	5000m run (min)	<18.13	20.14-18.14	24.16-20.15	26.17-24.17	>26.17
21	3-step standing long jump (m)	>6.40	5.95-6.39	5.05-5.94	4.60-5.04	<4.60
22	10-step standing long jump (m)	>20.86	19.21-20.85	15.91-19.2	14.26-15.9	<14.26

Table 2. Classification standards for selecting men's long middle-distance athletes at the age of 14

No.	Criteria	Very good	Good	Average	Weak	Poor
1	Foot length H/ Height (%)	>62.86	58.18-62.85	48.82-58.17	44.14-48.81	<44.14
2	Foot length H - Foot length C (cm)	>21.72	19.96-21.71	16.44-19.95	14.68-16.43	<14.68
3	Foot length Achilles (cm)	>31.67	29.51-31.66	25.19-29.50	23.03-25.18	<23.03
4	Relative vital capacity (ml/kg)	>74.7	68.58-74.69	56.34-68.57	50.22-56.33	<50.22
5	Relative VO ₂ max (ml/kg/min)	>60.36	57.35-60.35	51.33-57.34	48.32-51.32	<48.32
6	Respiratory quotient	>1.15	1.14-1.149	1.12-1.139	1.11-1.119	<1.11
7	Pulse oxygen index (ml/pulses)	>16.19	15.27-16.18	13.43-15.26	12.51-13.42	<12.51
8	Hemoglobin (g/l)	>150.44	143.62-150.43	129.98-143.61	123.16-129.97	<123.16
9	Max Blood lactate concentration (mmol/l)	>14.96	13.82-14.95	11.54-13.81	10.4-11.53	<10.4
10	Qsmax (ml)	>117.56	112.12-117.55	101.24-112.11	95.8-101.23	<95.8
11	Qsmax/Qs stability	>2.52	2.32-2.51	1.92-2.31	1.72-1.91	<1.72
12	Test open-loop control Landolt (bit/s)	>60.7	55.3-60.69	44.5-55.29	39.1-44.49	<39.1
13	Single reflection (ms)	<213.32	234.66-213.33	277.34-234.67	298.68-277.35	>298.68
14	30m high speed run (s)	<4.03	4.46-4.04	5.32-4.47	5.75-5.33	>5.75
15	100m starting block (s) (s)	<12.64	14.05-12.65	16.87-14.06	18.28-16.88	>18.28
16	600m run (s)	<100.7	110.85-100.71	131.15-110.86	141.3-131.16	>141.3
17	800m run (s)	<144	159.67-144.01	191.01-159.68	206.68-191.02	>206.68
18	1500m run (min)	<4.77	5.06-4.78	5.64-5.07	5.93-5.65	>5.93
19	3000m run (min)	<10.94	11.98-10.95	14.06-11.99	15.1-14.07	>15.1
20	5000m run (min)	<18.31	19.81-18.32	22.81-19.82	24.31-22.82	>24.31
21	3-step standing long jump (m)	>6.86	6.31-6.85	5.21-6.3	4.66-5.2	<4.66
22	10-step standing long jump (m)	>22.44	20.63-22.43	17.01-20.62	15.2-17	<15.2

4. Sports-oriented classification for men's long middle-distance athletes at the age of 13 - 15

Based on the developed criteria of athlete selection and the influential proportion of functional and physical strength criteria groups on the athlete's performance, the study has classified distance-oriented groups for training and competition of men's long middle-distance athletes at the age of 13 – 15. The results are in Table 5.

The results of the study show that two physical strength and functional criteria of

men's long middle-distance athletes have close relation and supplement to each other, contributing to improve Athletic performance for athletes. Athletes with very good function have very good or good physical strength and vice versa. Thus, the results of Table 5 show that for each age group, the study has make initial orientation of distance for training and competition by male athletes in 6 following groups:

Group 1 focuses on the content of competition in all long middle- distance events

Table 3. Classification standards for selecting men's long middle-distance athletes at the age of 15

No	Criteria	Very good	Good	Average	Weak	Poor
1	Foot length H/ Height (%)	>63.1	58.39-63.09	48.97-58.38	44.26-48.96	<44.26
2	Foot length H - Foot length C (cm)	>22.35	20.54-22.34	16.92-20.53	15.11-16.91	<15.11
3	Foot length Achilles (cm)	>31.94	29.73-31.93	25.31-29.72	23.1-25.3	<23.1
4	Relative vital capacity (ml/kg)	>75.81	69.67-75.8	57.39-69.66	51.25-57.38	<51.25
5	Relative VO2max (ml/kg/min)	>61.26	58.22-61.25	52.14-58.21	49.1-52.13	<49.1
6	Respiratory quotient	>1.16	1.15-1.159	1.13-1.14	1.12-1.129	<1.12
7	Pulse oxygen index (ml/pulses)	>16.37	15.41-16.36	13.49-15.4	12.53-13.48	<12.53
8	Hemoglobin (g/l)	>151.64	144.47-151.63	130.13-144.46	122.96-130.12	<122.96
9	Max Blood lactate concentration (mmol/l)	>15.23	14.06-15.22	11.72-14.05	10.55-11.71	<10.55
10	Qsmax (ml)	>119.03	113.46-119.02	102.32-113.45	96.75-102.31	<96.75
11	Qsmax/Qs stability	>2.5	2.32-2.49	1.96-2.31	1.78-1.95	<1.78
12	Test open-loop control Landolt (bit/s)	>62.48	56.64-62.47	44.96-56.63	39.12-44.95	<39.12
13	Single reflection (ms)	<285.12	264.56-285.13	223.44-264.57	202.88-223.45	>202.88
14	30m high speed run (s)	<3.94	4.35-3.95	5.17-4.36	5.58-5.18	>5.58
15	100m starting block (s) (s)	<12.57	13.96-12.58	16.74-13.97	18.13-16.75	>18.13
16	600m run (s)	<98.4	108.2-98.41	127.8-108.21	137.6-127.81	>137.6
17	800m run (s)	<141.72	157.06-141.73	187.74-157.07	203.08-187.75	>203.08
18	1500m run (min)	<4.56	4.89-4.57	5.55-4.9	5.88-5.56	>5.88
19	3000m run (min)	<10.55	11.57-10.56	13.61-11.58	14.63-13.62	>14.63
20	5000m run (min)	<18.19	19.67-18.2	22.63-19.68	24.11-22.64	>24.11
21	3-step standing long jump (m)	>7.09	6.51-7.08	5.35-6.5	4.77-5.34	<4.77
22	10-step standing long jump (m)	>22.64	20.84-22.63	17.24-20.83	15.44-17.23	<15.44

Bảng 4. Influential proportion (β) by groups of criteria on performance of men's long middle-distance athletes aged 13 - 15

Age	Influential proportion						Σ%
	Morphology		Physical strength		Function		
	Coefficient	% convert	Coefficient	% convert	Coefficient	% convert	
13	0.121	12.10	0.401	40.10	0.295	29.50	81.70
14	0.105	10.50	0.433	43.30	0.308	30.80	84.60
15	0.092	9.20	0.439	43.90	0.315	31.50	84.60

Table 5. Sports-oriented classification for men's long middle-distance athletes at the age of 13 - 15

Group	Number of athletes			Functional classification	Physical strength classification
	Age of 13	Age of 14	Age of 15		
1	4	4	4	Very good	Very good
2	5	5	4	Very good	Good
3	5	5	5	Good	Very good
4	5	5	5	Good	Good
5	5	5	5	Good	Average
6	6	6	5	Average	Good
Total	30	30	28		

Group 2 focuses on the content of competition in long- distance events $\geq 3000\text{m}$

Group 3 focuses on the content of competition in middle- distance events $<3000\text{m}$

Group 4 focuses on the content of competition in middle- distance events $\leq 1500\text{m}$

Group 5 focuses on the content of competition in the distance events $\leq 800\text{m}$

Group 6 focuses on the content of competition middle- distance events $<800\text{m}$

5. Examination and evaluation of effectiveness of sports orientation for for men's long middle-distance athletes at the age of 13 - 15

To examine the sports orientation of athletes, we have evaluated performance progress as well as the changes in physical strength and functional criteria of athletes after two years training. The examination results of groups show that:

Groups 1 to 4 after 2 years of training, the performance has statistically significant differences with $t_{\text{calculation}} > t_{\text{table}}$ at probability threshold $p < 0.05$. The growth rate is high, accounting for 10 - 20% at all ages.

- Groups 5 and 6, although the performance is also significantly different and high growth rate. However, with the orientation of distance $\leq 800\text{m}$, the age of over 14 is no longer the content of this competition, so the two groups can be discharged or shifted to other sports.

CONCLUSION

1. The study has developed the classification standards for selecting men's long middle-distance athletes at the age of 13 - 15.

2. The study has determined the functional and physical strength criteria groups that directly affect the athlete's performance and the morphological criteria group has small influence.

3. The study has classified and practically examined the distance-oriented groups and identified four groups in accordance with the reality.

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