

EVALUATING THE EFFICIENCY OF THE TRAINING PLAN FOR YOUNG BASKETBALL ATHLETES AGED 11-13

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Abstract:

Through the pedagogical experiments method, the efficiency of the training plan for young basketball athletes aged 11-13 has been evaluated according to their mental, physiological, physical, technical and professional norms of the subjects who participated in experiments.

Key words: Content of training, basketball athletes, aged 11 - 13

INTRODUCTION

Evaluating the efficiency of the training plan in terms of expertise by using norms, index, tests in the observing and monitoring of training process. Along with the trend of modern basketball development, the failure to fully assess the impact of training plans on the development of athletes will be a major obstacle for coaches. Therefore, in order to ensure the control of the effects of the training plan effectively and scientifically, we select the topic: "Evaluating the efficiency of the training plan for young basketball athletes aged 11 - 13".

RESEARCH METHODS

Regular research methods have been used in study progress: analyzing and synthesizing materials, pedagogical experiment and mathematical statistics.

RESULTS AND DISCUSSION

1. Organizing pedagogical experiment

- Experimental time: Pedagogical experiment is conducted during 12 months (from January 2012 to December 2012).

- Pedagogical experiment subjects including: 36 male and 36 female basketball athletes aged 11-13 of Quang Ninh teams, Yen Bai, Air and Air defense force.

Experimental content

Training Objective: Improving coordination of movement ability and basic technical skills;

Preliminary grasp of the basic tactical coordination method; Development of frequency of speed and aerobic endurance; Improve observation capabilities, competency analysis capabilities.

Training requirements: Increase awareness of the ball, coordination of arms and legs, rapid response; Ensure that attack technique is of correct specifications, rhythmic team coordination; Position, reasonable defense techniques, pressing the opponent, reasonable distance in front of opponent; ability to combine attack and defense, fast speed of changing between attack and defense; Focus on the development of response speed, movements frequency and aerobic endurance; Focus on practical skill, enhance the ability to apply techniques in competition and wide observation range.

Training content: A combination of basic movements training; Combination of basic attack techniques, Combination of basic defense techniques; Practice basic attack coordination tactics; Basic defense coordination tactics; Aerobic endurance training; Enhance flexible training and strength for women

Training duration: Number of training times: 300 times / year, 6 times / week; duration per times: 70 - 90 minutes. The training rate is as follows: Physical strength (35%); techniques (15%); Tactics (15%), Psychology (15%)

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Table 1. Evaluation results of norms, tests to assess training level through professional specialization training periods of male basketball athletes aged 11-13

No.	Test	Beginning (1)			After 6 months (2)			After 12 months (3)		
		11 years old (n=12)	12 years old (n=13)	13 years old (n=13)	11 years old (n=12)	12 years old (n=13)	13 years old (n=13)	11 years old (n=12)	12 years old (n=13)	13 years old (n=13)
	Body norms:									
1	Height (cm)	157.4±2.19	161.3±2.49	164.2±2.81	158.1±2.26	162.3±2.51	165.3±2.79	158.5±2.13	162.6±2.41	165.6±2.72
2	Weight (Kg)	50.3±1.28	55.2±2.30	57.3±2.83	51.2±1.28	55.7±2.24	57.8±2.76	51.7±1.21	56.2±2.15	58.7±2.75
3	Arm length (cm)	158.4±2.63	162.4±3.17	165.2±3.65	160.2±2.59	163.3±3.26	166.6±3.58	160.4±2.57	164.2±3.13	167.3±3.56
4	Hand length (cm)	17.6±0.4	17.7±0.4	17.8±0.4	17.7±0.3	17.9±0.5	17.9±0.5	18.0±0.7	18.0±0.7	18.0±0.3
5	Hand width (cm)	7.8±0.18	8.0±0.19	8.1±0.28	7.9±0.24	8.1±0.24	8.3±0.16	8.0±0.17	8.2±0.17	8.4±0.18
	Psychology norms:									
6	Ability to process information (bit/s)	0.89	0.91	0.94	1.18	1.19	1.21	1.27	1.31	1.34
7	Mental durability (điểm)	51	54	53	55	58	59	61	60	63
8	Reflex ability:									
	Single reflex time (ms)	136	139	141	159	161	162	176	175	180
	Complex reflex time (ms)	264	270	273	298	297	301	327	328	330
	Complex reflex error (%)	27.61	26.53	26.65	26.4	27.5	27.5	26.6	29.38	26.7
	Physiology norms:									
9	HW index(s)	15	14	13	14	13	12	12	11	10
10	Anaerobic capacity evaluation norms:									
	Comprehensive anaerobic capacity (W/Kg)	6	6.4	6.9	6	6.4	6.9	6	6.4	6.9
	Maximum anaerobic capacity (W/Kg)	7.7	7.9	8.3	7.7	7.9	8.3	7.7	7.9	8.3
	Anaerobic capacity exhaust index (%)	45	42.7	40.3	45	42.7	40.3	45	42.7	40.3
	Physical fitness norms:									
11	On-the-spot long jump (cm)	33.58±4.5	35.86±3.93	39.53±4.62	33.5±3.1	37.3±3.2	40.2±3.8	37.9±3.4	40.8±3.7	43.8±4.0
12	Forehand grip strength (Kg)	24.6±2.9	28.4±2.8	31.4±2.8	25.5±2.6	29.5±2.5	32.7±2.6	27.8±2.6	31.6±2.6	34.6±2.3
13	Sit and reach (cm)	17.5±2.9	17.6±2.7	17.2±3.1	18.2±3.3	18.5±2.4	18.3±3.1	18.8±3.3	18.8±2.2	19.0±3.3
14	Ability to maintain balance while bending one leg up with eyes closed (s)	26.2±5.8	27.2±5.2	27.8±4.3	32.1±5.3	28.2±5.6	28.6±4.2	29.4±5.9	29.4±4.6	29.3±4.1
15	20m running with sprint start (s)	5.24±0.41	4.67±0.23	3.87±0.26	4.16±0.31	3.96±0.24	3.76±0.16	3.85±0.32	3.78±0.24	3.55±0.21
16	T shaped running (s)	12.23±0.42	10.38±0.25	9.12±0.36	10.53±0.47	9.53±0.51	9.08±0.47	10.15±0.53	9.23±0.43	8.74±0.37
17	Flexible test 505 (s)	6.93±0.25	5.67±0.34	5.28±0.26	5.34±0.24	4.93±0.27	4.47±0.31	5.17±0.32	4.68±0.26	4.24±0.28
	Technical norms:									
18	Speed dribble 20m (s)	5.87±0.31	5.04±0.27	5.01±0.27	4.82±0.21	4.48±0.24	4.13±0.31	4.64±0.26	4.23±0.27	3.96±0.25
19	Dribble (s)	10.85±0.33	9.86±0.29	8.96±0.29	9.87±0.24	9.13±0.25	8.62±0.21	9.61±0.26	8.92±0.22	8.41±0.27
20	Move and pass ball in maximum time of 30s (point)	59.8±3.8	67.3±4.2	70.2±3.8	61.6±3.7	68.8±4.2	72.5±3.8	63.8±3.7	70.6±4.1	74.8±3.6
21	Dribble ball no.8 and lay-up 5 times (s)	31.43±0.51	29.16±0.52	27.84±0.53	29.73±0.61	28.03±0.58	26.76±0.43	29.24±0.42	27.58±0.46	26.37±0.47
22	Test Suicides Drill (s)	32.98±0.72	31.68±0.71	30.76±0.81	32.22±0.65	30.81±0.71	29.74±0.56	31.56±0.76	30.21±0.71	29.06±0.68
23	Stand one position and shoot 30 shots (number of shots into basket)	15.2±3.7	19.3±2.8	24.1±3.7	16.6±2.9	20.1±2.1	24.5±1.9	18.8±1.7	22.6±2.1	26.6±2.3

Table 2. Evaluation results of norms, tests to assess training level through professional specialization training periods of female basketball athletes aged 11-13

No.	Test	Beginning (1)			After 6 months (2)			After 12 months (3)		
		11 years old (n=12)	12 years old (n=13)	13 years old (n=13)	11 years old (n=12)	12 years old (n=13)	13 years old (n=13)	11 years old (n=12)	12 years old (n=13)	13 years old (n=13)
	Body norms:									
1	Height (cm)	156.4±2.19	159.3±2.46	162.1±2.80	156.9±2.20	160.1±2.45	163.2±2.82	157.2±2.29	160.7±2.54	164.4±2.79
2	Weight (Kg)	48.4±1.36	52.1±2.27	55.8±2.82	48.5±1.31	52.2±2.24	56.1±2.86	48.7±1.37	53.1±2.26	56.9±2.87
3	Arm length (cm)	157.5±2.61	161.3±3.22	165.2±3.65	157.7±2.63	161.7±3.27	165.5±3.63	157.9±2.68	162.1±3.27	165.6±3.61
4	Hand length (cm)	16.1±0.5	16.2±0.6	16.4±0.4	16.2±0.2	16.5±0.7	16.5±0.7	16.9±0.1	17.0±0.1	17.0±0.7
5	Hand width (cm)	7.1±0.24	7.2±0.21	7.3±0.21	7.4±0.26	7.5±0.25	7.6±0.21	7.5±0.26	7.6±0.28	7.8±0.21
	Psychology norms:									
6	Ability to process information (bit/s)	0.94	0.9	0.92	1.17	1.19	1.2	1.28	1.36	1.41
7	Mental durability (điểm)	52	55	57	56	60	61	62	64	67
8	Reflex ability:									
	<i>Single reflex time (ms)</i>	137	141	143	161	164	168	179	180	182
	<i>Complex reflex time (ms)</i>	266	271	275	296	299	303	326	329	332
	<i>Complex reflex error (%)</i>	26.28	26.31	27.04	25.12	26.21	26.81	27.16	24.51	25.72
	Physiology norms:									
9	HW index(s)	14	15	15	13	14	13	11	12	10
10	Anaerobic capacity evaluation norms:									
	<i>Comprehensive anaerobic capacity (W/Kg)</i>	6.7	6.9	7.4	6.7	6.9	7.4	6.7	6.9	7.4
	<i>Maximum anaerobic capacity (W/Kg)</i>	8.3	8.6	9.1	8.3	8.6	9.1	8.3	8.6	9.1
	<i>Anaerobic capacity exhaust index (%)</i>	45	42.7	40.3	45	42.7	40.3	45	42.7	40.3
	Physical fitness norms:									
11	On-the-spot long jump (cm)	33.03±3.56	35.37±2.87	37.1±3.62	32.4±3.1	34.9±3.2	36.7±3.6	35.8±3.4	37.6±3.3	40.3±3.2
12	Forehand grip strength (Kg)	22.8±2.7	24.8±2.3	26.9±2.7	22.2±2.0	25.3±2.1	28.1±2.4	24.3±2.3	27.5±2.5	30.5±2.6
13	Sit and reach (cm)	19.4±3.2	19.6±2.3	19.9±3.5	20.2±3.3	20.2±2.1	20.3±3.5	20.5±3.3	20.8±2.3	20.8±3.7
14	Ability to maintain balance while bending one leg up with eyes closed (s)	26.4±5.1	27.2±5.1	28.2±4.2	29.2±5.2	29.1±5.8	29.3±4.8	29.6±5.3	29.7±5.6	29.9±4.1
15	20m running with sprint start (s)	5.24±0.31	4.08±0.14	4.54±0.24	4.25±0.25	4.07±0.26	3.94±0.27	4.04±0.22	3.89±0.21	3.71±0.24
16	T shaped running (s)	11.86±0.53	10.84±0.52	11.04±0.43	11.16±0.51	10.23±0.52	9.55±0.56	10.76±0.62	9.84±0.52	9.33±0.62
17	Flexible test 505 (s)	6.37±0.18	5.68±0.35	5.98±0.24	5.92±0.19	5.45±0.21	5.16±0.28	5.72±0.31	5.22±0.27	4.86±0.25
	Technical norms:									
18	Speed dribble 20m (s)	6.03±0.52	5.03±0.23	4.89±0.25	5.27±0.46	4.93±0.37	4.66±0.38	5.13±0.34	4.74±0.41	4.48±0.37
19	Dribble (s)	11.29±0.37	10.07±0.34	9.68±0.26	10.25±0.26	9.65±0.31	9.33±0.36	9.92±0.33	9.52±0.36	9.16±0.38
20	Move and pass ball in maximum time of 30s (point)	54.1±5.2	57.3±2.8	61.7±3.5	54.7±3.2	58.8±3.5	62.7±4.1	57.5±3.7	60.8±4.3	64.9±3.8
21	Dribble ball no.8 and lay-up 5 times (s)	31.69±0.59	30.92±0.69	29.01±0.61	31.91±0.64	30.43±0.68	28.73±0.55	31.44±0.68	29.82±0.70	28.24±0.69
22	Test Suicides Drill (s)	36.37±0.84	34.75±0.73	32.24±0.67	35.76±0.65	33.93±0.71	32.15±0.67	35.02±0.63	33.31±0.71	31.58±0.74
23	Stand one position and shoot 30 shots (number of shots into basket)	15.8±2.7	17.5±2.4	19.9±2.7	15.4±2.3	17.4±2.5	20.8±2.2	17.6±2.1	19.3±2.5	22.8±2.6



Basketball is developing strongly in the system of schools at all levels in Vietnam

The norms, tests used to assess the level of training includes 23 norms, evaluation tests as shown in table 2.

2. Applying selected tests, norms to evaluate efficiency by tracking the performance of basketball athletes over training periods

We have been tracking the achievement progress in the past one year of training periods: Initially, after 6 months and 12 months of training. Test results of males and females basketball ages 11-13 are presented in tables 1 and 2.

The results in tables 1 and 2 show that:

After one year of training, the height of female athletes aged 11-13, who are at the age of before puberty and puberty, should follow the rules of fast development. At the age of 11 years old increased 0.8cm; At the age of 12 increased 1.4cm; At the age of 13 increased 2.3cm. At the age of 13, male basketball athletes with an average height of $165.6 \pm 2.72\text{cm}$ are relatively ideal. Of course, training is only one of the factors that help enhance the height of female, in addition to genetic factors, nutrition, external... so this is reasonable increase.

The fitness norms has a reasonable increase speed, of which the most noteworthy is the high jump norm. Male athletes at the age of 13 after 1 year of training, the high jump norm increased

4.3cm is not considered to be the best. It proved that attention should be given to reconsidering the speed development exercises and the arrangement of it.

With the technical assessment norms, in general there is growth after 1 year of training, in which noticeable 2 technical growth is speed dribble 20m (s) and free-throw 30 shots, count the number of shots into the

basket. The 13-year-old males dribble 20m reached $5.01 \pm 0.27\text{s}$ at the

beginning of the year, at the end of the year reached $3.96 \pm 0.25\text{s}$, shortened about 1.1 s is quite fast. Similarly, free-throw 30 shots, number of shots into the basket is 24 at the beginning of the year and nearly 27 at the end of the year is also a good result.

Males aged 11 – 13 just reached the near puberty, so the body and physiological functions are not at the fastest stage of development which leading to after one year of training there wasn't the fastest growth results compared with later training periods.

The height at the age of 13 after a year of training, males only grow about 1.4cm, the level is not higher than females is right. With a body height of $164.4 \pm 2.79\text{cm}$ is not ideal for basketball athletes because females are in the age of 13.

The fitness norms show that the growth rate is normal. After one year of training, the females' high jump increased only 3.2cm (for 13-year-old). As with males, more emphasis should be placed on speed training methods. Because this is an important physical factor for basketball athletes.

Regarding techniques evaluating norms, 13-year-old females increased slower than males, such as dribble 20m after a year of training which was up by less than 1 second $4.89 \pm 0.25\text{s}$



Develop a suitable, detailed training plan that will help the athletes training process to obtain the best efficiency

compare with 4.48 ± 0.37 s; similarly, the norm, test of free-throwing 30 shots count the number of shots into the basket at this age only increased less than 4 seconds 19.9 ± 2.7 compare with 22.8 ± 2.6 , even this females' result is worse than males'. It indicates that training arrangements for females may not be appropriate.

Overall, the results of training according to the experimental plan are good, but it could be better, especially for females

3. Evaluate the efficiency of training by effectively selecting athletes to the stage of professional specialization

To determine the training efficiency of the training plan, the topic determines the number of athletes belong to the four groups (I, II, III and IV) during the selection process of the professional specialization stage. The results show that:

The selection effectiveness with research subjects are athletes in Quang Ninh is high with 73.91% compared to the selection of the experimental participating groups, reached only 64.00 - 70.83%. The recruitment efficiency is not high so it is necessary to raise the selection norms. The selection coefficient shows that: It should evaluate the effectiveness of the training through the selection norms at the same time with the evaluation of the selection effectiveness

of athletes on the next training period.

CONCLUSION

From the research results, it allows to go to the conclusion:

1. After 12 months of experiments, the test results of the professional and physiological norms of athletes have shown good growth, demonstrating the effectiveness of the training plan content developed.

2. The result of determining selection effectiveness with research subjects are athletes in Quang Ninh province is high with 73.91% compared to the selection of the experimental participating groups, reached only 64.00 - 70.83%. The professional specialization recruitment efficiency is not high so it is necessary to raise the selection norms.

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