Analysis of sports form development and performance stability during competitions in the annual training of middle-distance runners

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Abstract

Purpose: This study aims to determine the results of research on the phased implementation of a program designed to improve the sports form of middle-distance runners in annual training sessions and to scientifically substantiate its practical significance. This article analyzes the effectiveness of gradually improving sports form by applying a 3-stage system of workload for middle-distance runners at the sports improvement stage during annual training sessions.

Methods: The following were used as examples of pedagogical tests and control exercises: analysis of scientific and methodological literature, pedagogical observation, research organization, pedagogical experience, mathematical and statistical methods, and analysis of the obtained results.

Results: The results of the experimental group's middle-distance runners participating in 5 competitions throughout the year showed that in the 800m run, the annual improvement rate reached 0.33 seconds, while in the 1500m run, the annual improvement rate reached 0.27 seconds.

The results of the control group's middle-distance runners participating in 5 competitions throughout the year showed that in the 800 m run, the annual performance improvement reached up to 0.5 seconds, and in the 1500 m run, the annual performance improvement reached up to 0.17 seconds.

Conclusion: The results of current research and pedagogical observations revealed that in the study conducted to determine the physical fitness of middle-distance runners, no significant difference was observed in the physical fitness level indicators between the experimental and control groups. However, when we analyzed and compared the results obtained at the beginning of this study, it was found that the sports form of the athletes in both the experimental and control groups was not sufficiently developed.

Keywords: Preparatory training, competition period, physical fitness, cumulative effectiveness, means, sports form, step-by-step improvement.

Introduction

After an athlete achieves sports form, the task arises to maintain it throughout the entire period of important competitions and transform it into achieving sports successes [1].

Sports form is not only a condition but also a process - a process of continuous improvement of all qualities, skills, and abilities, demonstrating readiness to achieve success in sports [3, 7].

In a highly trained state (peak physical condition), an athlete can demonstrate higher quality physical, technical, and tactical performance in their activities [6, 3].

Peak physical condition is the optimal integration of all aspects of preparation: physical, technical, tactical, psychological, functional, and integral readiness to enhance the athlete's personal performance during competition in the chosen sport [4, 5].

The phased implementation of a program aimed at increasing the final acceleration based on the development of speed-strength endurance during the annual training process of middle-distance runners creates the opportunity to achieve stable peak physical condition during the competition period and ensures the growth of sports results through its continuous improvement in competitions held throughout the year.

Results and discussion

The study utilized the following pedagogical tests to determine the physical fitness of athletes: 800 m run to assess speed endurance, and 1500 m run to evaluate special endurance.

Research conducted on the formation of peak physical condition and achieving high performance during competitions, as well as maintaining it consistently throughout the annual training process of middle-distance runners, recommends performing a set of 3-stage exercises in the final part of daily training sessions for 20 to 30 minutes. The positive effectiveness of the exercises is primarily achieved by applying equal volumes and minimal rest intervals. Below is the procedure for implementing these sets of exercises (refer to tables 1, 2, 3).

Table 1. Description of the application of a set of exercises at the preparatory stage I for middle-distance runners (part I)

FIRST SET OF EXERCISES (JUMPING EXERCISES)				
No	Content of the exercises	Exercise norm	Rest	Organizational and methodological guidelines
1.	Starting position: Standing. One leg in front, the other behind, alternating legs while jumping.	30 times left leg. 30 times right leg.	20 seconds	Exercise must be performed using the standard interval method
2.	Starting position: Standing. Knee-to-chest jumps	10 times, repeat 3 times	10 seconds	Exercise must be performed using the standard interval method
3.	Starting position: Standing. Single-leg knee jumps	30 times left leg. 30 times right leg.	10 seconds	Exercise must be performed using the standard interval method
4.	Starting position: Standing on one leg, with the other leg extended straight forward. 1 full squat, 2 half-squats, 3 jump up	10 times left leg. 10 times right leg.	10 seconds	The exercise should be performed using the standard interval method
5.	Starting position: Half-squat. Light jogging in place with one leg bent forward	10 times Repeat 3 times	10 seconds	The exercise should be performed using the standard interval method
6.	Starting position: Standing. Quickly jump and touch one knee to the chest (alternating legs)	10 times Repeat 3 times	10 seconds	The exercise should be performed using the standard interval method
7.	Starting position: Standing upright. Quickly jump up and land in a half-squat position	10 times Repeat 3 times	10 seconds	The exercise should be performed using the standard interval method
8.	Starting position: Half-squat. Jump from a fully extended position	30 times	Without breaks	The exercise should be performed using the standard continuous method

Table 2. Description of the application of a set of exercises at the preparatory stage I for middle-distance runners (Part II)

SECOND SET OF EXERCISES (FLEXIBILITY EXERCISES)				
N	Content of the exercises	Exercise norm	Rest	Organizational and methodological guidelines
1.	Starting position: Standing on one half-bent leg, body parallel to the floor, hands touching the ground, the other leg freely bent behind. Without straightening the body, jump and pull the standing leg to the chest (hands separate for balance) and return to starting position. (Performed without changing legs)	10 times	Without breaks	The exercise must be performed in a standard continuous manner
2.	Starting position: Standing on one half-bent leg, body parallel to the floor, hands touching the ground, the other leg freely bent behind. Without straightening the body, jump and pull the standing leg to the chest (hands separate for balance) and return to starting position. (Performed by alternating legs)	10 times left leg 10 times right leg	20 seconds	Exercise must be performed with standard intervals

Table 3. Description of the application of the set of exercises at the preparatory stage I of middle-distance runners (Part III)

THIRD SET OF EXERCISES (ON-SITE RUNNING EXERCISES)				
N	Content of the exercises	Exercise norm of exercise	Rest	Organizational and methodological guidelines
1.	Starting position: Run 200 m at high speed from a low start	10 times	Without breaks	The exercise must be performed in a standard continuous manner
2.	Starting position: A.T. Stretching Exercises	10 times	For 30 seconds	Exercise must be performed with standard intervals
3.	Starting position (S.P.). Standing position (S.P.). Jump, lifting the thigh high with one leg, quickly lowering it to the ground.	10 times left leg. 10 times right leg.	10 seconds	The exercise must be performed using the standard interval method
4.	S.P. Standing on one leg and jumping forward with the other leg bent	10 times left leg. 10 times right leg.	30 seconds	The exercise must be performed using the standard interval method
5.	S.P. Standing position. The same exercise, but jumping while alternating legs	10 times left leg. 10 times right leg.	30 seconds	The exercise must be performed using the standard interval method
6.	S.P. Standing position. With a jump, quickly raise one straight leg forward (horizontally)	10 times left leg. 10 times right leg.	30 seconds	The exercise must be performed using the standard interval method
7.	S.P. Running at high speed from a crouched start	3 times	30 seconds	The exercise must be performed using the standard interval method
8.	S.P. Finish with a 200m run at 60% of maximum speed	3 times	30 seconds	The exercise must be performed using the standard interval method

Table 4. Analysis of sports form stability indicators for middle-distance runners in the study group during the annual training period (n=12)

N	Full Name	Running distances	Training period										
			I-Autumn-Winter Training period				II-Winter-Spring Training period		III-Spring-Summer Training period				
			1st competition		2nd competition		3rd competition		4th competition		5th competition		Annual results growth
			Result	Growth	Result	Growth	Result	Growth	Result	Growth	Result	Growth	
1.	A-v A.	800 m.	2:10.62	0.3	2:08.83	0.2	2:05.74	0.3	2:02.41	0.3	2:00.35	0.2	0.33
2.	Mu-v A.	800 m.	2:12.35	0.4	2:09.41	0.3	2:07.38	0.2	2:04.19	0.3	2:01.27	0.3	0.11
3.	Mi-v A.	800 m.	2:12.67	0.3	2:07.73	0.5	2:04.62	0.3	2:02.62	0.2	1:57.78	0.5	0.15
4.	S-v B.	800 m.	2:08.93	0.3	2:05.67	0.3	2:03.62	0.2	2:02.62	0.1	2:00.48	0.2	0.08
5.	A-v N.	1500 m.	4:38.50	0.5	4:31.50	0.7	4:18.50	0.13	4:07.50	0.12	4:06.35	0.1	0.10
6.	I-v V.	1500 m	4:26.43	0.8	4:18.67	0.8	4:11.53	0.7	4:07.62	0.4	4:04.92	0.3	0.22
7.	I-v R.	1500 m	4:31.72	0.4	4:28.31	0.3	4:23.47	0.5	4:14.52	0.9	4:07.18	0.7	0.24
8.	I-v Sh.	1500 m	4:23.04	0.2	4:17.50	0.6	4:12.33	0.5	4:09.82	0.3	4:08.26	0.1	0.15
9.	T-v J.	1500 m	4:38.79	0.7	4:33.64	0.5	4:25.52	0.8	4:18.69	0.7	4:09.24	0.9	0.29
10.	M-v M.	1500 m	4:38.50	0.5	4:32.58	0.6	4:23.37	0.9	4:17.15	0.6	4:11.50	0.6	0.27
11.	Sa-v A.	1500 m	4:26.39	0.2	4:22.47	0.4	4:09.04	0.13	4:06.39	0.3	4:01.27	0.5	0.25
12.	So-v A.	1500 m	4:29.61	0.7	4:23.48	0.6	4:19.61	0.4	4:06.69	0.13	4:02.38	0.4	0.27

This set of exercises should be concluded with a 100-meter run (at a pace slightly faster than jogging). These exercises are designed to increase hip joint mobility and strengthen leg muscles.

This set of exercises should be completed with a 200-meter run (at a pace

Fig. Dynamics of sports form stability indicators for middle-distance runners in the experei-ment and control groups during the annual competition period (n=12) *(from right to left side)*

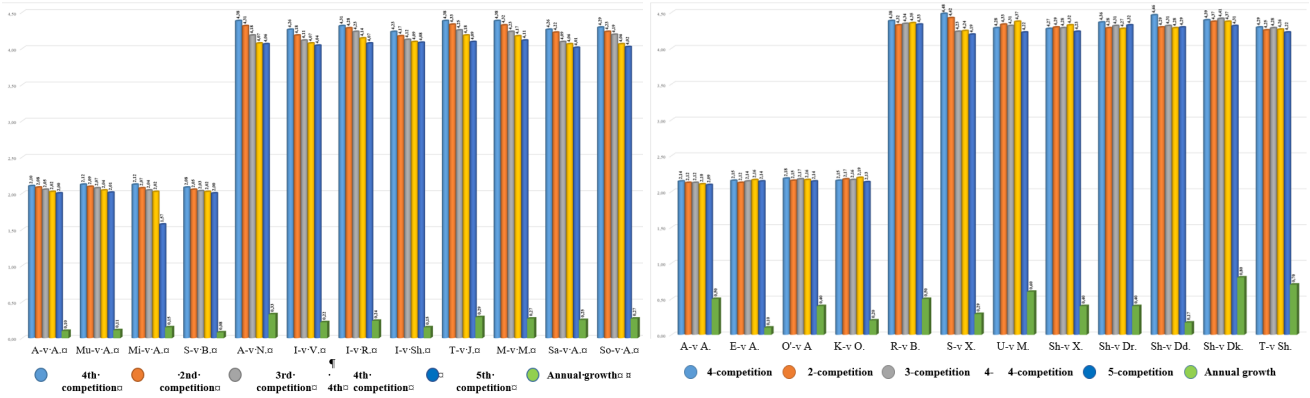


Table 5. Analysis of sports form stability indicators for middle-distance runners in the control group during the annual training period (n=12)

No	Full Name	Running distances	Training period										
			Autumn-winter preparation period				Winter-spring preparation period		Spring-summer preparation period				Annual results growth
			1st competition		2nd competition		3rd competition		4th competition		5th competition		
			Result	Growth	Result	Growth	Result	Growth	Result	Growth	Result	Growth	
1.	A-v A.	800 m	2:14.27	0.4	2:12.36	0.2	2:12.68	0	2:10.63	0.2	2:09.85	0.1	0.05
2.	E-v A.	800 m	2:15.93	0.3	2:12.67	0.3	2:14.62	0.2	2:16.62	0	2:14.45	0.2	0.01
3.	O'-v A.	800 m	2:18.39	0.4	2:15.48	0.3	2:17.34	0	2:16.32	0.1	2:14.28	0.2	0.04
4.	K-v O.	800 m	2:15.68	0.3	2:17.83	0.2	2:16.76	0.1	2:19.47	0.3	2:13.35	0.6	0.02
5.	R-v B.	1500 m.	4:38.59	0.2	4:32.49	0.6	4:34.04	0	4:35.39	0	4:33.27	0.2	0.05
6.	S-v X.	1500 m.	4:48.63	0.5	4:42.58	0.6	4:23.37	0.19	4:24.15	0	4:19.50	0.5	0.17
7.	U-v M.	1500 m.	4:28.46	0.8	4:33.67	0	4:31.53	0.2	4:37.65	0	4:22.97	0.15	0.06
8.	Sh-v X.	1500 m.	4:27.46	0.8	4:29.64	0	4:28.53	0.1	4:32.62	0	4:23.72	0.7	0.04
9.	Sh-v Dr.	1500 m.	4:36.31	0.8	4:28.93	0.8	4:31.53	0	4:27.62	0.4	4:32.92	0	0.04
10.	Sh-v Dd.	1500 m.	4:46.47	0.8	4:29.67	0.16	4:31.53	0	4:28.62	0.3	4:29.38	0	0.17
11.	Sh-v Dk.	1500 m.	4:39.49	0.8	4:37.38	0.2	4:41.53	0	4:37.62	0.4	4:31.61	0.3	0.08
12	T-v Sh.	1500 m.	4:29.64	0.7	4:25.48	0.4	4:28.63	0	4:26.17	0.2	4:22.35	0.4	0.07

slightly faster than light jogging). These exercises are aimed at increasing hip joint mobility and strengthening leg muscles.

This set of exercises should be completed with a 400-meter run (at a speed slightly faster than jogging). These exercises are aimed at increasing the mobility of the hip joint and strengthening the leg muscles.

A set of exercises coordinating the activity of antagonistic-synergistic muscles of the thighs and lower legs in middle-distance runners' training, based on a 3-stage annual training system, was applied to middle-distance runners at the sports improvement stage involved in the experiment according to the methodology described in the tables above.

Five main competitions were identified for middle-distance runners at the sports improvement stage. Data on the development and stability of sports form, based on the results recorded by athletes in the experimental and control groups, are presented in the following tables and diagrams.

Illustrating the characteristics of annual training periods for middle-distance runners involves highlighting the specific features that characterize the content and structure of the training process in each period and observing

how these features change in the transition from one period to another. A significant difference emerged between the experimental and control groups in the formation of sports form for middle-distance runners during year-round competitions, as evidenced by the recorded results.

We can observe that the stability indicators of the sports form of middle-distance runners in both the experimental and control groups during the annual competition period were formed based on the results they recorded. According to this data, we can state that the results of the athletes in the experimental group showed a consistent and stable growth trend throughout the 5 competitions. The main reason for this is that the methodology we introduced into the training sessions had a positive impact on achieving the expected effectiveness during the pedagogical experiment.

The results of the athletes in the control group showed a growth rate during the 5 competitions, however, the results did not consistently increase, and in some competitions, a decrease was also observed. The main reason for this is related to the lack of monitoring the formation of individual sports form in controlling the athletes' preparation, the failure to appropriately apply restorative or transitional microcycles of sports form after each competition, and conducting training sessions without paying special attention to a number of factors.

Conclusion

The results of the participation of the middle-distance runners in the experimental group in 5 competitions throughout the year showed that in the 800 m run, the annual growth indicators increased by up to 0.33 seconds, and in the 1500 m run, the annual growth indicators increased by up to 0.27 seconds.

The results of the control group's middle-distance runners participating in 5 competitions throughout the year showed that in the 800 m run, the annual improvement indicators increased by up to 0.5 seconds, and in the 1500 m run, the annual improvement indicators increased by up to 0.17 seconds.

The application of a special exercise complex we developed for improving athletic form in the annual training of middle-distance runners proved to be an effective approach, as evidenced by the obtained results and consistent performance indicators in competitions.

References

Bondarchuk A.P. **(2007)** *Upravleniye trenrovchnim prossesom sporsmenov visokogo klassa* [Managing the training process of high-class athletes] Moscow: Olimpia press; p.148.

Olimov M.S. **(2023)** *Yugurish turlarida yengil atletikachi talabalarni tayyorlashning ilmiy pedagogik asoslari"* (yugurish turlari misolida) [Scientific and pedagogical foundations of training track and field athletes in running sports] (on the example of running sports). (DSc) dissertation. Chirchik, pp. 208.

Khujamkeldiyev G.S. **(2022)** *Orta masofalarga yuguruvchi sportchilarning yillik tayyorgarlik mashg'ulotlar jarayonida tiklovchi vositalardan foydalanish samaradorligi* [The effectiveness of the use of restorative means in the process of annual preparatory training for middle-distance runners] (PhD) dissertation. Chirchik, pp. 78.

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