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DETERMINING, ANALYZING AND DEVELOPING INDICATORS OF BIOMECHANICAL PARAMETERS OF HIGHLY SKILLED AND QUALIFIED ATHLETES AND BEGINNERS IN SHORT-DISTANCE RUNNING COMPETITIONS

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ABSTRACT

This article focuses on the reforms implemented in the field of sports in our country and the models for the quality of training of specialists in the field of physical education and sports.

KEYWORDS

Physical education, sports and tourism, the decision "On measures to further improve the system of training and scientific research in the field of physical education and sports".

INTRODUCTION

The relevance and necessity of the dissertation topic.

The preparation of talented and promising athletes worldwide, particularly improving their annual training sessions and searching for methods that allow for the growth of sports results, is considered one of the important issues of a new scientific and theoretical

approach. When comparing the sports results of our short-distance runners with those of top sprinters worldwide, it can be noted that foreign athletes have advanced significantly. In preparing athletes for short-distance running, the annual training process involves distributing loads during the preparation phase,

competition phase, and transition phase, taking into account their physical development, physical readiness, technical-tactical condition, psychological and functional preparation levels, and the identification and analysis of biomechanical parameters. Leading scientists have studied and conducted research on how to distribute these loads effectively. However, the increasing sports results year by year demand the improvement of annual training sessions, which is no secret to anyone. Yet, the overall volume of tools and methods applied in annual training, their intensity, the identification and analysis of biomechanical parameters, and the emergence of new athletes in world championships, cup

competitions, and the Olympic Games highlight the necessity of improving the technique of short-distance runners based on biomechanical analysis. The identification, analysis, and development of biomechanical parameters in high-qualified and skilled athletes, as well as new practitioners, in short-distance running competitions have been determined. It was revealed through research that athletes with body structures specific to short-distance running have a greater potential to achieve good results. This is because they typically have broad shoulders, long legs, and well-developed muscles, which provide an advantage for achieving higher performance in the sport.

1- table.

Determining, analyzing and developing biomechanical parameters in running competitions ,
n=28

Determining, analyzing and developing indicators of biomechanical parameters of highly qualified athletes in short-distance running competitions										
№	Name and surname	2008	2009	2010	2011	2012	2013	Distance Max Speed	Group, seat, corridor	Number of steps
1	Usain Bolt	9,63	10,01	9,58	10,05	9,88	10,01	55,27	6-1-4	40
2	Michael Frater	9,97	10,22	9,90	10,26	9,96	10,23	50,61	7-1-5	46

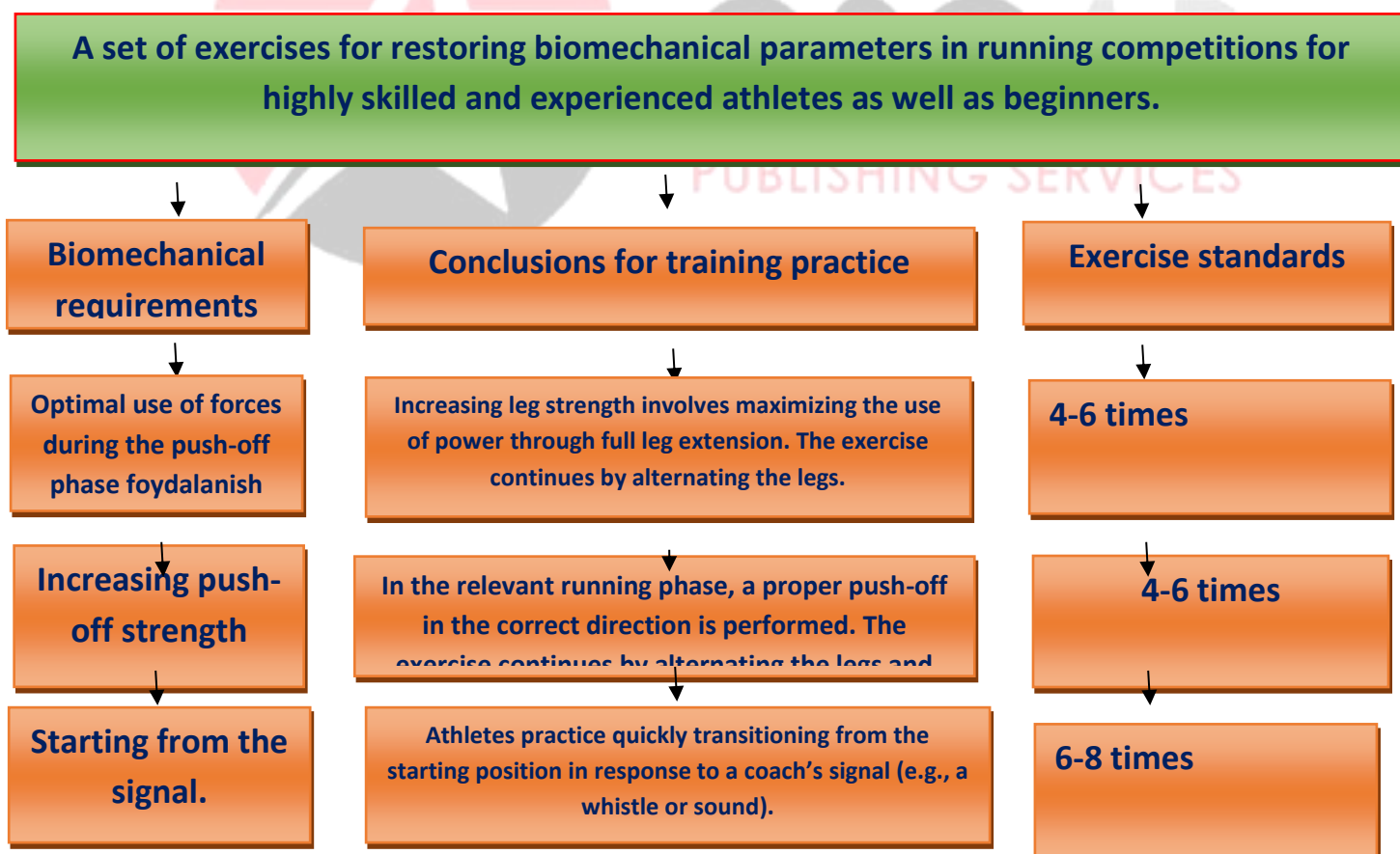
3	Nestor Carter	9,92	10,23	9,97	10,26	9,97	10,24	54,55	5-1-3	47
4	Johan Bleilk	9,92	10,20	9,91	10,21	9,92	10,21	54,99	4-1-6	47
Determining, analyzing and developing indicators of biomechanical parameters of skilled athletes in short-distance running competitions										
No	Name and surname	2010	2020	2021	2022	2023	2024	Distance Max Speed	Group, seat, corridor	Number of steps
1	T.U..R	11,0 6	11,04	10,59	10,57	10,55	10,46	48,47	2-1-4	63
2	M.S.S	12,1 7	12,07	12,03	12,01	11,59	11,57	47,66	4-1-5	45
3	R.I.R	12,3 8	12,41	12,48	12,68	12,71	12,88	44,35	5-1-3	66
4	A.S.U	11,5 2	11,55	11,52	11,42	11,37	11,32	47,23	3-1-6	64
Determining and analyzing biomechanical parameters of novice athletes in short-distance running competitions, and determining indicators for developing their results										
No	Name and surname	2010	2020	2021	2022	2023	2024	Distance MaxSpeed	Group, seat, corridor	Number of steps
1	S.M.I	13,0 3	12,57	12,54	12,42	12,34	12,32	43,31	3-1-4	45
2	A.G.I.	13,0 4	13,01	12,59	12,54	12,49	12,46	42,51	1-1-5	52

3	Q.R.A.	13,0 8	12,59	12,51	12,49	12,41	12,39	42,25	2-1-3	54
4	N.S.I	13,0 8	13,02	12,97	12,91	12,89	12,88	41,37	4-1-6	45

Note: Table 4 shows the biomechanical parameters of highly skilled and skilled athletes and novices in short-distance running competitions.

The main statistical characteristics of the results recorded at the time of force generation at the end of the experiment to determine, analyze and develop the results of biomechanical parameters of highly skilled and qualified athletes and novices in short-distance running competitions: distance, maximum

speed, number of steps when we compared, it was found that these results were good. Based on the above results, we developed this set of biomechanical exercises and presented them in the following sequence in Figure 1.



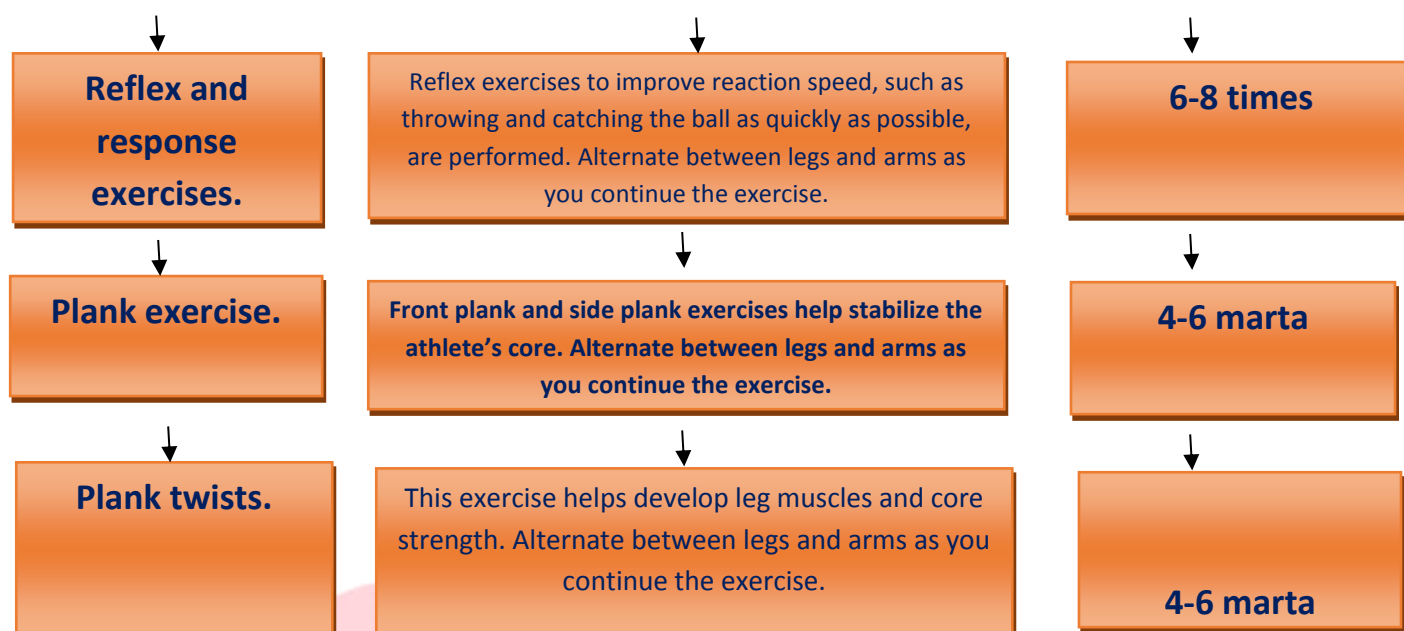


Figure 1. A set of exercises for restoring the biomechanical parameters of highly qualified and skilled athletes and novices is shown.

This exercise helps to strengthen the tension position. When we compared the main statistical characteristics of determining the biomechanical parameters of highly skilled and qualified athletes and beginners in short-distance running competitions, it was found that these results were improved. To restore the biomechanical parameters to the research group. 12 of the 14 short-distance runners were ready for the next training session when the training complex was taken. It can be determined from this that it is possible to know that leg movements are performed at the right angle during the determination, analysis and development of biomechanical parameters. We have developed a set of

exercises to restore biomechanical parameters in order to improve the results of short-distance runners in the training phase. According to him, it is aimed at increasing the results of short-distance runner athletes in short-distance running competitions.

Application of repeated variable rest interval methods in training of short distance runners from control and experimental groups designed to master the lower starting position and correct starting running technique at the end of the experiment. we studied the comparison of the main statistical characteristics of the indicators of improving the technique of starting and running from the start.

2- table.

Comparing the statistical characteristics of the lower start position and the sprinting performance after the start among short-distance runners during the experiment.

N	Control group			Experimental group			t	P
	\bar{x}	s	V, %	\bar{x}	S	V, %		
1	12,55	1,33	12,12	11,78	1,33	12,12	1,99	>0.05
2	24,39	2,83	13,12	23,00	2,83	13,12	2,96	<0.01
3	49,01	0,12	14,13	46,08	0,12	14,13	2,14	<0.05
4	2,24	0,23	13,16	2,11	0,08	13,16	2,31	<0.05
5	44,87	0,08	12,13	53,16	7,01	12,13	2,22	<0.05
6	3,87	0,80	14,12	5,22	0,34	14,12	2,23	<0.05
7	239,8	1,63	13,01	239,07	1,63	13,11	2,07	<0.05

Note: short-distance runners t end at lower start position and start sh dynamics.

The physical loads given in our training sessions are the low start position recommended for short distance runners and the repetitive variable rest interval training methods, which are designed to master the proper starting and starting technique. In order to determine the indicators of improvement of starting and starting running techniques, a common method of evaluating physical fitness was used. When we compared the main statistical characteristics of the results recorded at the time of force generation at the end of the experiment according to the comparative analysis of the biomechanical parameters of students belonging

to the control and experimental groups, the criterion of t.student for 100 meters was 1.99, $p > 0.05$. . When comparing the main statistical characteristics of the results recorded in 200 meters, the t.student criterion was 2.96, $p < 0.01$, and when comparing the main statistical characteristics of the results recorded in the 400 meters, the t.student criterion was 2.14, $p < 0.05$ formed the level of probability, when we compared the main statistical characteristics of the results of the start (10 meters) t student's criterion 2.31, $p < 0.005$ was the level of probability, when we compared the main statistical characteristics of the recorded results of

step speed, height/s during 100 m, the t student criterion was 2.22, $p < 0.05$, the level of probability was 2.22, $p < 0.05$. When we compare the main statistical characteristics of the results of the maximum acceleration distance, the absolute percentage is 0.06, the relative percentage is 1.41. t student's criterion was 6.4, $p > 0.001$ probability level, when comparing the main statistical characteristics of the results recorded in step length, absolute percentage is 0.06, relative

percentage is 1.41. t student's criterion was 2.2, $p > 0.005$. Comparing the main statistical characteristics of the recorded results of running cadence/min, t student's criterion was 2.23, $p < 0.05$. In the experimental and control groups, at the beginning of the study and finally, we used the following control tests to determine the dynamics of changes in the statistical characteristics of physical fitness indicators.



2- fig. Experiment and n torture group dynamics of changes in statistical characteristics of physical fitness indicators at the beginning and end of the study (n=28).

This table lists the recommended lower starting position for sprinters and the number of repetitions in sprints designed to help them learn proper starting technique. At the end of the study, the experimental group developed by us showed a positive change in the dynamics of the statistical characteristics of the indicators performed in the small sections designed to master the lower start position and the correct exit

technique of running from the start. The above is based on the results of pedagogical observation. taking into account the technical preparation of short-distance runners, we have developed a method that develops the muscles of the arms, shoulders, back, abdomen and ankle joints for them. we went out:

- development of tendon reflexes through high-amplitude hip, knee, and calf flexion exercises

- jumping up from a standing position with a pair of legs and landing on the ground resting on the hands and performing repeated high-amplitude jumps without lifting the heel. This exercise should be performed 10 times at high intensity. Rest interval - 1-2 minutes.

- t hit from one leg up jump and to the ground leaning on hands without landing and alternating legs repeated with a large amplitude up performing jumps intensity . This exercise should be performed 10 times at high intensity . Rest Interval – 1-2 minutes.

- jumping up from a standing position with a pair of legs and landing on the ground with hands. After this movement, repeat the exercise 4 times on each leg, dynamically bending the left leg and changing it to the right leg by throwing the pair of legs back and repeating the jump from a sitting position back to the initial position. This exercise should be performed 10 times at high intensity. Rest interval - 1-2 minutes. Continuity position - the athlete assumes a running position, jumps up for 10 seconds, changes the position of arms and legs in the air, and returns the legs and arms to the original position during landing.

CONCLUSIONS

Studying differences in running technique: The differences in running technique between highly skilled athletes, skilled athletes, and novice runners were examined in short-distance running competitions by identifying, analyzing, and tracking the

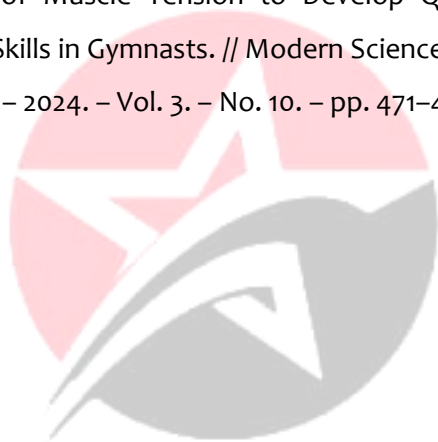
development of biomechanical parameters. Changes in technique were observed across highly skilled, skilled, and novice athletes.

To develop speed capabilities, running on sloping hills (slope angle-2-4°) was used under reduced conditions. In this case, the best results can be achieved if running on a slope is alternated with horizontal running and running up a hill (mountain). Training in the preparatory period should include special preparatory exercises of various jumps and sprints. Performing these exercises in parts, the time it takes to perform them almost continuously should be gradually reduced to 20-25 minutes by the end of the training period.

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