

The influence of anaerobic loads on the volume and accuracy of aimed shots in children 7-8 years old playing table tennis

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Abstract: The aim of this study is to investigate the volume and accuracy of aimed shots in young tennis players aged 7-8 years. The study was conducted under conditions of relative rest and against the background of the aftereffect of the shuttle run "herringbone" at a distance of 54 meters. Particular attention was paid to the analysis of the results of cardiorespiratory reactions, which allows us to assess the impact of physical activity on the athletic performance of young athletes. The results will help to deepen the understanding of the physiological processes occurring in the body of children during tennis training and competitions.

Keywords: young tennis players, aimed shots, volume and accuracy, physical activity, cardiorespiratory reactions, herringbone shuttle run, sports performance, physiological processes, training, competitions.

Introduction: Achieving high sports results in modern table tennis, as well as the development and maintenance of the effectiveness of TTA during competitive games, largely depends on the level of manifestation of anaerobic performance of players [G.V. Barchukova, 2015, pp. 57-62; B.P. Sokur, 2022, pp. 399-402; L.A. Dmitrenko 2010, pp. 36-39; Heng. Chuantao. 2019, pp. 6-25;]. Thus, G.V. Barchukova and A.I. Laptev believe that when preparing tennis players at various stages of a long-term sports training cycle, special attention should be paid to the development of aerobic-anaerobic performance, speed-strength and coordination fitness, and point out the need to organize this process taking into account the relevant model indicators. B.P. Sokur and co-authors (A.T. Davletova, A.A. Pavliy) believe that it is advisable to develop speed abilities as anaerobic capabilities in table tennis from the earliest stage of initial training, since it is precisely these qualities that ensure successful improvement of the speed of reaction to a moving object and the reaction of choosing response actions. L.A. Dmitrenko with A.V. Yasinskaya [2010, pp. 36-39] showed that in table tennis when processing left and right diagonal runs during classes in initial training groups, the optimal training intensity is 46-47 strokes,

1-2 year training groups 56-57, and 4 year training groups is 65-66 strokes.

In these groups, when performing such exercises, the heart rate increases to 130-140 beats per minute by 7 minutes, then it decreases to 115-130 beats per minute. According to the authors, such data are extremely important for assessing the intensity of training and the anaerobic capacity of tennis players. Heng Chuantao [2019, pp. 5-25], using the example of a study of children aged 6-8 years involved in table tennis, came to the conclusion that when teaching and practicing the technique of game actions, special attention should be paid to the use of precision-speed training tasks.

The above information and opinions of the authors regarding the priority importance of speed qualities of anaerobic orientation are confirmed by our research.

The aim of the study was to examine the volume and accuracy of aimed shots using young tennis players aged 7-8 years in conditions of relative rest and against the background of the aftereffect of a 54 m herringbone shuttle run with an analysis of the results of cardiorespiratory reactions.

Methodology and organization of the study. The speed

quality of the anaerobic nature was assessed based on the speed of the running exercise "herringbone" - 54 m as a test developed by us, and is performed according to the following scheme: 3 m from the tennis table, a square shape of the court is drawn with a length of 6 m and a width of 3 m; along the side lines every 2 m and in the middle of the face line (start) are placed stuffed

balls (a total of 7 stuffed balls); at the signal, the subject must run the entire distance (54 m) at speed in the form of a herringbone, touching each stuffed ball with a racket; after the last segment of the distance is run, at the moment of touching the ball, the stopwatch is turned off and the time is determined (Fig 1.).

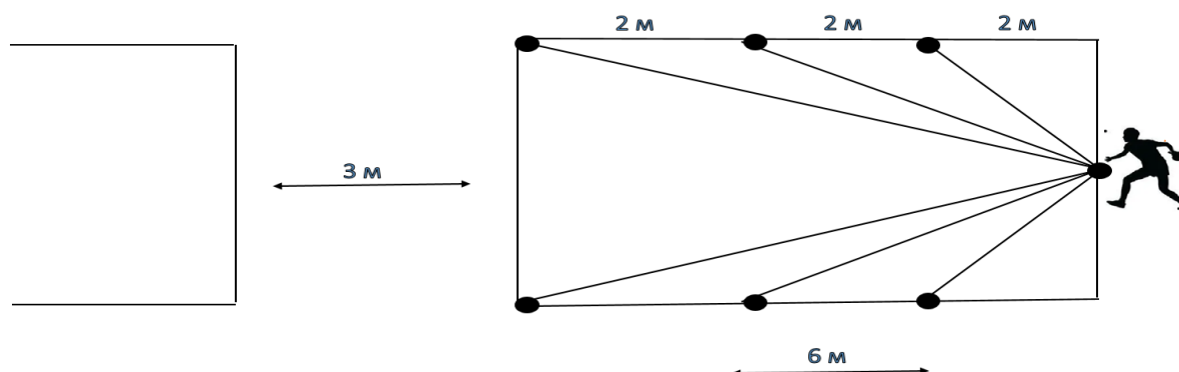


Fig 1

"herringbone" shuttle run.

The aiming accuracy of the strikes was assessed based on the results of the following combined test exercise developed by us: a tennis table is placed tightly against the wall with its side facing up; a target circle with a diameter of 45 cm is drawn on the wall 45 cm high from the middle part of the table surface; the subject, standing at the start at the edge of the table, performs aimed strikes at the target at a signal within 30 seconds; the total number of strikes and the accurate ones are counted; the test is performed "at rest" – without load and against the background of the aftereffect of the

RESEARCH RESULTS AND THEIR DISCUSSION

The results of the study showed that the volume of strokes in 30 seconds at rest without load in young tennis players aged 7-8 years before the start of the educational and training year (ETY) was 25.9 ± 2.29 times, and by the end of the ETY the total number of strokes in 30 seconds increased to 27.7 ± 2.35 times or the difference in the growth of the volume of strokes in a given time was only 1.8 times (table 1).

Table 1.

The impact of running "herringbone 54 m" on the 30-second volume of strokes and their accuracy in children aged 7-8 years engaged in table tennis – $n=36 \times 3=108$

Parameters test	At the beginning of the academic training year	At the end of the educational and training year	Difference in indicators
At rest without load			
Impact volume in 30 sec	$25,9 \pm 2,29$	$27,7 \pm 2,35$	1,8
Number of accurate strikes in 30 seconds	$9,3 \pm 1,5$	$9,9 \pm 1,7$	0,6
Under the influence of herringbone running – 54 m			
Impact volume in 30 sec	$14,6 \pm 1,78$	$15,9 \pm 1,89$	1,3
Number of accurate	$2,8 \pm 0,05$	$3,9 \pm 0,07$	1,1

strikes in 30 seconds			
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Of these, the number of accurate strikes at the beginning of the UTG was 9.3 ± 1.5 times, and after the UTG it increased to 9.9 ± 1.2 times, or the difference in accurate strikes was equal to 0.6 times. Under the influence of anaerobic load in the form of running "herringbone - 54 m", the volume of strikes for 30 seconds sharply decreased and was 14.6 ± 1.78 times, or the difference in the decrease in the total volume of strikes at rest and under the influence of this load was equal to two times less than the number of strikes recorded at rest. And even by the end of the UTG, this value increased very slightly and was 15.9 ± 1.89 times. And the number of accurate strikes against the background of the aftereffect of the running load "Christmas tree - 54 m" decreased even more and amounted to 2.8 ± 0.05 times at the beginning of the UTG, and after the UTG it increased by only 1.1 times or amounted to 3.9 ± 0.07 times.

CONCLUSION

From the data provided it is evident that the actual level of the volume and accuracy of strikes, noted in the conditions of the organism's "rest" decreased more than twice at the moment of recording these data against the background of the aftereffect of the used anaerobic load in the form of "herringbone - 54 m". It should be assumed that the occurrence of such an aftereffect is associated with insufficient stability of the parameter of the target accuracy of strikes to the impact of anaerobic loads and thus orients towards the need for systematic development of this ability against the background of the influence of various confusing factors.

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