# Methodology for developing physical training of equestrians

**Gaziev Bakhrom Valievich**[1]

[1]Uzbekistan state university of physical education and sport, Chirchik, Uzbekistan

## Abstract

*Purpose:* Methodology for developing physical training of equestrians.

*Methods:* The study uses methods of analysis of scientific and methodological literature, questionnaires; pedagogi cal observations; biomedical methods, control tests char acterizing special preparedness, pedagogical experiment, mathematical and statistical data processing.

*Results:* During the pedagogical experiment, a significant change was observed in the main statistical characteristics of physical fitness indicators recorded by the 12-13 year old riders in the control group of the Tashkent Regional Equestrian Sports School.

In particular, for the 1st test studied in the CG, at the beginning of the pedagogical experiment, a result of 190.63±27.85 cm was recorded, while at the end of the experiment, a result of 207.18±29.94 cm was recorded. The absolute increase in the arithmetic mean of this test result in the group compared to the corresponding indicator at the beginning of the experiment was 16.55 cm, and the relative growth was 8.68% (as shown in the diagram in Figure 2).

*Conlcusion:* Among the eight physical fitness indicators studied in the EG, the greatest relative increase (22.06%) was observed in the 8th test, while the smallest relative increase (13.11%) was seen in the 4th test. The average relative increase for the group was 19.37% (a positive change of 10.42% more, or 2.142 times greater, than the control group's corresponding 8.95% increase).

**Keywords:** equestrian sport, rider, physical exercises, coordination, technical-tactical, physical training, specialized physical training.

## Introduction

In accordance with the physiological principles of training aimed at developing the physical qualities and technical skills necessary for equestrians, we planned a specific volume of physical loads with various orientations. In the microcycle, the volume of aerobic physical loads constituted 15%, aerobic-anaerobic 70%, and anaerobic-aerobic 15%. Among the numerous methods used to study the effects of physical exertion on the body and assess functional state, methods suitable for use in training sessions and competitive conditions were selected. To evaluate the rider's physical condition at the initial training stage, the dynamics of heart rate were studied during the training process. The obtained data allowed for determining the degree of impact of physical loads on the body and establishing the intensity of exercises. Thus, when the rider performed a test load of horseback riding in the arena, a maximum heart rate of 180.2±4.4 beats per minute was recorded. This indicates that the riding exercises performed by the rider during the pre-competition preparation stage belong to the anaerobic energy supply mechanism and have submaximal and maximal intensity.

Taking into account the specific characteristics of initial training for equestrians, field test exercises are performed at low intensity with a maximum heart rate of 159.8±11.0 beats per minute. Such a workload represents high intensity and an aerobic-anaerobic energy supply mechanism for riders. The highest heart rate value was recorded during the performance of field test exercises in the preparatory period. The highest pulse values in riders were observed when performing workloads during the preparatory and pre-competition stages - 189.4±2.7 and 200.5±5.9 beats per minute, respectively. This indicated that the performed workload had maximum intensity and an anaerobic energy supply mechanism.

When performing general physical training and special physical training exercises, the average heart rate indicators in athletes of the control and experimental groups were expressed in low values. The maximum recorded heart rate during the control test program was 190.3±5.2 beats per minute. The heart rates of riders, determined during the performance of test workloads at the preparatory stages, showed low values; however, these values were still within the zone of intensive physical exertion.

Thus, monitoring the heart rate of athletes during various exercises revealed specific pulse dynamics at the initial stage of training, and the maximum pulse value was accurately recorded,

which allowed determining the intensity of special physical loads on the rider's body.

Morphological studies were conducted to determine the effect of physical loads on the rider's body and to assess their functional state at the initial stage of training. The impact of training loads on the body was evaluated by the dynamics of indicators recorded before training and 1 hour after the final test exercise. The assessment of the depth of morphological changes occurring in the rider's body after performing the competition load was carried out at the beginning and end of the control tests in accordance with the adopted methodology. Analysis of data on the morphological indicators of riders during the preparatory microcycle revealed that at rest, the average group indicators were within the physiological norm, and after the test, no significant changes occurred. During the study of the control and experimental groups, it was established that at 3 stages of preparation, both at rest and after the completion of test loads, the average group values of the indicators remained within the physiological norm (G.A. Simonyan, F.F. Khisamutdinov, 1995).

During the study of special physical training of equestrians, it was found that the activity indicators of barbell exercises exceeded the physiological norm at rest throughout all stages of preparation. The dynamics of the training load were determined by the volume and intensity of physical exercises characteristic of each preparatory stage. Analysis of the equestrians' performance after completing test loads during the annual training cycle revealed that performing exercises increased the activity of special physical training at all stages of preparation. However, the best indicators of the body were observed only in the third stage.

A comparative analysis of general physical fitness and special physical fitness indicators in athletes at rest and after exercise revealed that physical load during special physical training elicits response reactions in the body characteristic of high and maximum-intensity muscle activity. Additionally, it was observed that not only changes typical of morphological development occurred after performing muscle work of varying intensity, but also disruptions in the process of functional systems adapting to loads at certain preparatory stages, as well as signs of metabolic disturbances in skeletal musculature. Thus, simultaneously studying the indicators of general and special physical fitness allowed for determining the level of morphofunctional capabilities of equestrian athletes, assessing the impact of physical loads on the athlete's body, and uncovering factors that limit sports performance.

It is necessary to develop the overall flexibility of the rider. This can be determined through the forward bending test. The "Forward Bending" test is performed by standing straight on a gymnastics bench with feet together. The bending depth is measured by the distance between the fingertips and the upper surface of the bench using two vertical rulers fixed to the bench so that the zero mark aligns with the upper edge of the bench. One ruler faces up, the other down. If the subject's fingertips are located below the upper edge of the bench, the result is marked with a "+" sign; if above, with a "-" sign. When performing the exercise, bending the knees and bouncing movements are not allowed. The evaluation criteria are presented in Table 4.

## Results and discussion

It plays an important role in developing the physical fitness of equestrians, improving their skills, patience, and psychological stability.

For equestrians, strength and endurance provide balance. Strength development exercises, such as high-repetition physical training, exercises using curved and straight force applications, help increase physical strength.

Equestrians constantly need to make quick movements, therefore it is important to develop coordination. This improves balance, fluidity, and the ability to adapt physical movements.

Breathing technique plays a crucial role in physical training. The ability to breathe correctly contributes to improving physical condition.

For equestrians, proper nutrition is a key component of physical training. Their diet should be balanced, rich in vitamins and minerals necessary for long-term energy and muscle recovery.

The physical training program includes many elements:

Special exercises for riders are provided to develop physical fitness. For example, intense running, plyometrics (jumping exercises), and balance training.

**Table 1.** **Assessment Standard for the "Forward Bending" Test**

| Points | 12 years old | | 13 years old | | 14 years old | |
|---|---|---|---|---|---|---|
| | *Girls* | *Boys* | *Girls* | *Boys* | *Girls* | *Boys* |
| **5** | *12 and above* | *11 and above* | *15 and above* | *12 and above* | *17 and above* | *14 and above* |
| **4** | 9-11 | 8-10 | 11-14 | 9-11 | 13-16 | 11-13 |
| **3** | 4-8 | 6-7 | 6-10 | 5-8 | 8-12 | 6-10 |
| **2** | 1-3 | 4-5 | 2-5 | 3-4 | 5-7 | 4-5 |
| **1** | 0 | 3 and below | 1 and below | 2 and below | 4 and below | 3 and below |
| **Points** | *13 years old* | | *14 years old* | | *15 years old* | |
| | *Girls* | *Boys* | *Girls* | *Boys* | *Girls* | *Boys* |
| **5** | *19 and above* | *16 and above* | *21 and above* | *18 and above* | *22 and above* | *20 and above* |
| **4** | 15-18 | 13-15 | 17-20 | 15-17 | 19-21 | 17-19 |
| **3** | 10-14 | 8-12 | 12-16 | 10-14 | 14-18 | 13-16 |
| **2** | 7-9 | 5-7 | 9-11 | 7-9 | 10-13 | 9-12 |
| **1** | *6 and below* | *4 and below* | *8 and below* | *6 and less* | *9 and less* | *8 and less* |
| Score | 16 years old | | 17 years old | | 18 years and older | |
| | Girls | Boys | Girls | Boys | Girls | Boys |
| **5** | 24 and more | 23 and more | 25 and more | 23 and more | 25 and more | 25 and more |
| **4** | 20-23 | 19-22 | 21-24 | 18-22 | 22-24 | 20-22 |
| **3** | 15-19 | 15-18 | 15-20 | 13-17 | 17-21 | 16-19 |
| **2** | 12-14 | 12-14 | 11-14 | 8-12 | 13-16 | 9-15 |
| **1** | 11 and less | 11 and less | 10 and less | 7 and less | 12 and less | 8 and less |

These exercises are used to increase strength, mobility, agility, and physical endurance.

During physical training, recovery for fatigued muscles is very important. Proper rest, correct breathing, and timely breaks are essential for the body's recovery.

Psychological factors are also important in developing the physical fitness of riders. Coping with stress and overcoming physical weakness improves the preparation of riders.

Developing the physical fitness of riders is a complex and long-term process. It requires effective preparation, proper nutrition, and psychological stability. If these elements are properly provided, riders will have the opportunity to improve their physical condition and achieve successful results.

There is a growing need in leading foreign countries to conduct scientific research on developing individual training programs focused on the physical, functional, and psychological preparedness of riders during the initial training period. To study such issues in equestrian sports, we organized research aimed at developing the physical fitness of riders in the initial training group.

Student-athletes from the Tashkent Regional Equestrian Sports School participated in the research (26 participants in each group).

Eight tests, consisting of physical exercises, were used to develop their physical fitness. The 1st test was "standing long jump, cm," the 2nd test was "pull-ups on the horizontal bar (as many as possible), times," the 3rd test was "100 m sprint time, s," the 4th test

**Table 2. Assessment of the level of special physical training for equestrians**

| Total points | Score |
|---|---|
| 15-12 | excellent |
| 11-8 | good |
| 4 or more | satisfactory |

was "4x10 m shuttle run time, s," the 5th test was "maximum squats on the right leg," the 6th test was "maximum squats on the left leg," the 7th test was "maximum dips on parallel bars," and the 8th test was "standing on one leg with eyes closed and arms crossed over the chest (seconds)." Initially, the research was conducted at the Tashkent Regional Equestrian Sports School.

Table 3 presents data comparing the main statistical characteristics of physical fitness indicators recorded at the initial stage of the pedagogical experiment by riders aged 12-13 in the control and experimental groups of the Tashkent Regional Equestrian Sports School.

Analysis of the data presented in this table showed that at the initial stage of the pedagogical experiment, the physical fitness indicators of riders in the control and experimental groups did not differ significantly from each other. Specifically, for the first test studied at the initial stage of the pedagogical experiment, a result of 190.63±27.85 cm was recorded in the control group (CG), while a result of 187.83±28.13 cm was recorded in the experimental group (EG). The absolute difference between the arithmetic mean of this test result in the CG and the corresponding indicator in the EG was 2.80 cm, with a relative difference of 1.47% (as shown in the diagram in Figure 1).

**Table 3. Comparison of the main statistical characteristics of physical fitness indicators recorded at the beginning of the pedagogical experiment by 12-13 year old riders of the Tashkent Regional Equestrian Sports School in the control (n=26) and experimental (n=26) groups**

| TB | Control group | | | Experimental group | | | AD | RD | t | P |
|---|---|---|---|---|---|---|---|---|---|---|
| test | X | σ | V, % | X | σ | V, % | | | | |
| 1 | 190.63 | 27.85 | 14.61 | 187.83 | 28.13 | 14.98 | 2.80 | 1.47 | 0.36 | >0.7 |
| 2 | 6.17 | 1.02 | 16.60 | 6.33 | 1.07 | 16.97 | 0.16 | 2.59 | 0.55 | >0.5 |
| 3 | 14.76 | 2.30 | 15.61 | 14.56 | 2.32 | 15.96 | 0.20 | 1.36 | 0.31 | >0.7 |
| 4 | 7.93 | 1.16 | 14.63 | 7.78 | 1.17 | 14.97 | 0.15 | 1.89 | 0.47 | >0.6 |
| 5 | 8.38 | 1.31 | 15.57 | 8.49 | 1.36 | 15.98 | 0.11 | 1.31 | 0.30 | >0.7 |
| 6 | 10.54 | 1.75 | 16.60 | 10.27 | 1.74 | 16.97 | 0.27 | 2.56 | 0.56 | >0.5 |
| 7 | 6.33 | 0.98 | 15.55 | 6.45 | 1.03 | 15.98 | 0.12 | 1.90 | 0.43 | >0.6 |
| 8 | 7.28 | 1.21 | 16.62 | 7.39 | 1.25 | 16.97 | 0.11 | 1.51 | 0.32 | >0.7 |
| | | | | | | | 0.49 | 1.82 | | |

Among the eight physical fitness indicators studied, the largest relative difference (2.59%) was observed in the second test, while the smallest relative difference (1.31%) was observed in the fifth test, with an average relative difference of 1.82%. It should be acknowledged that this relative difference is sufficiently small.

Among the eight studied indicators of physical fitness in the NG, the greatest relative increase (10.15%) was observed in the 6th test, and the smallest relative increase (6.81%) was observed in the 4th test, with the average relative increase across the group being 8.95%.

It was observed that the changes in the main statistical characteristics of physical fitness indicators recorded by the riders of the experimental group aged 12-13 years from the Tashkent Regional Equestrian Sports School during the pedagogical experiment were significantly higher compared to the corresponding indicators in the control group (Table 5).

Specifically, in the experimental group (EG), the first test showed an initial result of

**Table 4. Dynamics of changes in the main statistical characteristics of physical fitness indicators recorded by 12-13 year old riders of the Tashkent Regional Equestrian Sports School control group during the pedagogical experiment (n=26)**

| CG | Beginning of experiment | | | End of experiment | | | AG | RG | t | P |
|---|---|---|---|---|---|---|---|---|---|---|
| test | X | σ | V, % | X | σ | V, % | | | | |
| 1 | 190.63 | 27.85 | 14.61 | 207.18 | 29.94 | 14.45 | 16.55 | 8.68 | 2.06 | <0.05 |
| 2 | 6.17 | 1.02 | 16.60 | 6.79 | 1.12 | 16.49 | 0.62 | 10.05 | 2.08 | <0.05 |
| 3 | 14.76 | 2.30 | 15.61 | 13.71 | 2.12 | 15.47 | 1.06 | 7.15 | 1.72 | >0.05 |
| 4 | 7.93 | 1.16 | 14.63 | 7.39 | 1.07 | 14.48 | 0.54 | 6.81 | 1.74 | >0.05 |
| 5 | 8.38 | 1.31 | 15.57 | 9.17 | 1.42 | 15.49 | 0.79 | 9.43 | 2.09 | <0.05 |
| 6 | 10.54 | 1.75 | 16.60 | 11.61 | 1.91 | 16.45 | 1.07 | 10.15 | 2.11 | <0.05 |
| 7 | 6.33 | 0.98 | 15.55 | 6.92 | 1.07 | 15.46 | 0.59 | 9.32 | 2.07 | <0.05 |
| 8 | 7.28 | 1.21 | 16.62 | 8.01 | 1.32 | 16.48 | 0.73 | 10.03 | 2.08 | <0.05 |
| | | | | | | | 2.74 | 8.95 | | |

187.83±28.13 cm at the beginning of the pedagogical experiment, which increased to 223.18±31.51 cm by the end. The absolute increase in the arithmetic mean of this test result for the group was 35.35 cm compared to the initial measurement (a positive change of 19.20 cm more than the control group's corresponding increase of 16.55 cm).

The relative increase was 18.82% (a positive change of 10.14% more than the control group's corresponding 8.68% increase). These results are illustrated in Figure 3.

Table 6 presents data on the dynamics of absolute and relative changes in the main statistical characteristics of physical fitness indicators recorded at the beginning (test) and end (retest) of the experiment by 12-13 year old riders from the Tashkent Regional Equestrian Sports School in the experimental and control groups during the pedagogical experiment.

## Conclusion

In all eight studied indicators of physical fitness, the corresponding relative growth indicators in the experimental group were almost twice as high as in the control group. The average relative growth in the experimental group (EG) was 2.142 times higher than the corresponding relative growth in the control group (CG) (relative growth

**Table 5. Dynamics of changes in the main statistical characteristics of physical fitness indicators recorded by riders aged 12-13 years from the Tashkent Regional Equestrian Sports School experimental group during the pedagogical experiment (n=26)**

| EG | Experimental group | | | Physical training | | | absolute growth | relative growth (in percent). | t | P |
|---|---|---|---|---|---|---|---|---|---|---|
| | Beginning of the experiment | | | End of experiment | | | | | | |
| test | X | σ | V, % | X | σ | V, % | | | | |
| 1 | 187.83 | 28.13 | 14.98 | 223.1 | 31.51 | 14.12 | 35.35 | 18.82 | 4.27 | <0.001 |
| 2 | 6.33 | 1.07 | 16.97 | 7.71 | 1.25 | 16.15 | 1.38 | 21.80 | 4.28 | <0.001 |
| 3 | 14.56 | 2.32 | 15.96 | 12.52 | 1.89 | 15.13 | 2.04 | 14.01 | 3.47 | <0.01 |
| 4 | 7.78 | 1.17 | 14.97 | 6.76 | 0.96 | 14.14 | 1.02 | 13.11 | 3.45 | <0.01 |
| 5 | 8.49 | 1.36 | 15.98 | 10.29 | 1.56 | 15.16 | 1.80 | 21.20 | 4.44 | <0.001 |
| 6 | 10.27 | 1.74 | 16.97 | 12.49 | 2.02 | 16.13 | 2.22 | 21.62 | 4.25 | <0.001 |
| 7 | 6.45 | 1.03 | 15.98 | 7.79 | 1.18 | 15.15 | 1.34 | 20.78 | 4.36 | <0.001 |
| 8 | 7.39 | 1.25 | 16.97 | 9.02 | 1.45 | 16.12 | 1.63 | 22.06 | 4.33 | <0.001 |
| | | | | | | | 5.85 | 19.17 | | |

during the experiment: 8.95% in the CG, 19.17% in the EG).

Thus, in the experimental work conducted at the Tashkent Regional Equestrian Sports School, it was observed that the physical fitness indicators of the riders in the experimental group improved significantly compared to the corresponding indicators in the control group.

## References

Yoldashov Sh.S. **(2023).** *Optimal ratios of physical training loads at the initial training stage of equestrian ath*letes// Dissertation prepared for the degree of Doctor of Philosophy (PhD) in Pedagogical Sciences. Chirchik. 2023, 120 pages.

Dillon, Jane Marshall. **(2002)** *Equestrian sport. Jumping technique and style.* M.: Aquarium, 2002.-158 p.

Dietze, Susanne von. Balance in motion. Rider's seat. M.: Moscow Equestrian Sports Club for Disabled Persons (MKKI), FN, **(2001).** -pp. 47.

Myasoedova I.E., Soboleva O.O. **(2008).** *"Theoretical and Methodological Foundations of Modern Equestrian Sport"* (collection). - Malakhovka: MGAFK.

Zaytseva, A.A. **(2022).** *Horse Breeding: Textbook for Universities* / A.A. Zaytseva, A.B. Muromtsev.-Moscow: Yurayt Publishing House, pp. 196.

## AUTHOR BIOGRAPHY:



**Bakhrom Valievich GAZIEV**

**Employment**
Researcher at Uzbekistan state university of physical education and sports

**Degree**
MD

**Research interests**
Equestrians, Physical education and sport, Theory of physical education, Analyzing of sport competitions