

# The effects of boxing training on the physical condition of first-year students

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PhD, Associate Professor **Yu.V. Tikhonov**<sup>1</sup>

Dr. Hab., Professor **V.Yu. Karpov**<sup>2</sup>

PhD, Associate Professor **A.L. Yurchenko**<sup>3</sup>

**N.D. Tagirova**<sup>4</sup>

<sup>1</sup>Penza State Social University, Penza - branch of the Russian State Social University, Moscow

<sup>2</sup>Russian State Social University, Moscow

<sup>3</sup>Financial University under the Government of the Russian Federation, Moscow

<sup>4</sup>Astrakhan State Medical University, Astrakhan

Corresponding author: vu2014@mail.ru

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## Abstract

**Objective of the study** was to assess the intensity of the physical response of first-year students to boxing training during the initial phase.

**Methods and structure of the study.** Thirty-two young men were chosen from the student population at the university, creating two groups of young students. One group consisted of 18 individuals who began boxing training, while the other group included 14 individuals who did not wish to participate in sports. These individuals were monitored for a period of one year. The study employed a method of testing and a method of statistical analysis.

**Results and conclusions.** The boxing classes enhanced physical activity and boosted endurance among participants. The students' stamina improved, enabling them to handle greater loads. The boxing regimen enriched the repertoire of learned movements, enhanced speed and power, and refined the coordination of those involved.

**Keywords:** boys, students, sports boxing, physical abilities, motor characteristics.

**Introduction.** Increasing the physical activity of students, especially first-year students, is a pressing issue for the educational system due to the heavy workload of students in the educational process [4]. This problem can be solved by involving students in various types of martial arts that can satisfy the need of young people for competition, physical development and social involvement [1, 3].

**Objective of the study** was to assess the intensity of the physical response of first-year students to boxing training during the initial phase.

**Methods and structure of the study.** From the students who started their education at the university, 32 young men were selected, who formed two groups of different physical activity. One group included 18 students who started regular boxing training, the other included 14 people who did not want to do sports. The novice boxers trained under the supervision of an experienced trainer twice a

week for one hour. To assess the dynamics of physical capabilities in the control group and in the boxer group, tests were used to assess physical capabilities. In the control group, testing was performed once. Boxers were tested initially and then at an interval of 6 months. Student's t-criterion was calculated using a computer.

**Results of the study and discussion.** All the students under observation had poorly developed muscles of the limbs and trunk, as well as the cardiopulmonary system. This was manifested in those observed by a low level of physical capabilities (see table) in both observation groups. In conditions of physical activity, a feeling of fatigue set in early in the groups. This was accompanied by an increase in the number of irrational movements in young boxers, their slowing down and weakening of attention to the details of the fight and to the behavior of the opponent. Those who expressed a desire to



### Physical development of boxers

Applied tests for assessing physical capabilities	Control group, M±m, n=14	Classes in the boxing section, M±m, n=18		
		Before classes begin	6 months of boxing	12 months of boxing
Long jump from a standing position, m	1,42±0,38	1,43±0,43	1,86±0,19 p<0,01	2,04±0,23 p<0,01
Distance covered in 6 minutes, m	958,6±25,14	962,3±22,19	1124,3±39,49 p<0,05	1315,6±41,03 p<0,01
Possible number of pull-ups, repetitions	5,1±0,47	5,3±0,51	8,2±0,32 p<0,01	13,6±0,25 p<0,01
Torso lifts from a horizontal position during 1 minute, repetitions	21,3±0,31	22,5±0,43	34,2±0,71 p<0,01	47,4±0,61 p<0,01
Duration of shuttle run 4x9, s	14,4±0,62	14,2±0,58	10,8±0,69 p<0,01	8,7±0,35 p<0,01
Jumping rope for 25 sec, repetitions	22,1±0,91	23,5±0,87	35,8±0,58 p<0,01	44,5±0,42 p<0,01
Running a distance of 30 m, s	6,2±0,57	6,1±0,46	4,9±0,31 p<0,01	4,2±0,25 p<0,01
Running a distance of 60 m, s	10,9±0,72	10,7±0,63	8,8±0,53 p<0,01	7,9±0,47 p<0,01

Note: p – significance of the dynamics of indicators.

attend the boxing section had low strength development, judging by the small number of pull-ups performed. At the beginning of the observation, the boxers' group had low speed-strength indicators. Judging by the results in the running tests, the jump test and the body lifting test, this group had low endurance, running a short distance in 6 minutes. Before training, the future boxers demonstrated modest coordination, which was confirmed by their 4x9 shuttle run time and the result of the jumping test with a rolling pin (see table).

During the observation of the trainees, their monitored parameters moved away from the initial level and the values characteristic of the control. After 6 months of training, the young men noted a weakening of the feeling of fatigue from training in the section, which disappeared after 12 months of training. Under the conditions of regular physical training in the section, the examined young men showed an increase in their physical capabilities. The growth of the strength capabilities of the young boxers was indicated by an increase in their ability to pull up – by 60,8% by 6 months of training, by 2,7 times by 12 months of training. The achieved increase in their speed-strength capabilities was indicated by a reduction in 30m running time by 24,5% and 45,2% and 60m running time by 21,6% and 35,4%, an increase in long jump by 30,1% and 42,6% with an increase in body lifts in one minute by 52,0% and 2,1 times, respectively, at 6 and 12

months of observation. Against this background, there was an improvement in coordination, as indicated by a decrease in the duration of the shuttle run test by 31,5% and 63,2% and an increase in the number of jumps with a skipping rope by 52,3% and 89,4%. An increase in endurance in those training was confirmed by an increase in the distance of a six-minute run by 16,8% and 36,7%, respectively, at 6 and 12 months of training. Regular muscle activity in the conditions of training in the boxing section caused muscle hypertrophy in different muscle regions. Muscle development was facilitated during training by the enhancement of macromolecule biosynthesis in myocytes, activation of reparation phenomena in them and generation of macroergs [2]. The emerging situation minimized the risk of various dysfunctions in boxers, maintaining a high level of health in those who trained. These changes in those who began to engage in boxing led to an increase in the physical development of the young organism, associated with an increase in the reserve capacity of the organism, muscle strengthening and enrichment of the set of learned movements [3]. The revealed gradual enhancement of locomotor characteristics in those engaged in the boxing section was ensured by an increase in the development of muscles supporting posture and ensuring body movement in space with the functional improvement of the vestibular apparatus structures as the training experience increased [4].



**Conclusions.** Regular muscular activity of students in the boxing section has an activating effect on physical parameters. As the experience of boxing training increases, positive dynamics of physical characteristics are observed. An increase in the accuracy of movements and functional improvement of life-support organs was achieved. As a result, as the experience of training increases, boxers' endurance, strength, coordination and speed parameters increased. Irregular physical activity during educational physical education classes did not lead to the physical development of students. For this reason, it is justified to recommend regular boxing training for long periods of time to student youth, designed to increase the level of physical capabilities, form the basis for successful mastering of the curriculum of the future profession.

## References

1. Alenurov E.A., Zavalishina S.Yu., Boldov A.S., Svetlichkina A.A. Razvitiye fizicheskogo potentsiala studentov-pervokursnikov, zanimayushchikhsya rukopashnym boyem. *Teoriya i praktika fizicheskoy kultury*. 2024. No. 5. pp. 72-73.
2. Zavalishina S.Yu., Makhov A.S. Funktsionalnyye vozmozhnosti yunoshey pri uglublennyykh zanyatiyakh fizicheskoy aktivnostyu. *Teoriya i praktika fizicheskoy kultury*. 2022. No. 5. 68 p.
3. Tkacheva E.S. Fiziologicheskaya reaktsiya krovi studentov na regul'yarnyye zanyatiya rukopashnym boyem. *Teoriya i praktika fizicheskoy kultury*. 2024. No. 1. 108 p.
4. Khvastunov A.A., Vorobyeva N.V., Medvedev I.N., Kichigina E.V. Funktsionalnyye vozmozhnosti yunyykh bokserov. *Teoriya i praktika fizicheskoy kultury*. 2023. No. 3. 47 p.