

USING TRACK AND FIELD RUNNING AND JUMPING EXERCISES TO IMPROVE THE STRENGTH QUALITIES OF STUDENTS

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Annotatsiya: Mazkur maqolada oliy ta'lim muassasalari talabalarining kuch sifatini takomillashtirishda yengil atletikaning yugurish va sakrash mashqlaridan foydalanishning pedagogik imkoniyatlari yoritilgan. Tadqiqotda qisqa masofaga yugurish, startdan tezlanish, maksimal tezlikda yugurish, joyidan va yugurib kelib uzunlikka sakrash, yuqoriga sakrash hamda ko'p martalik sakrash mashqlarining talabalarining kuch va tezkor-kuch qobiliyatlarini rivojlantirishdagi ahamiyati tahlil qilingan. Yugurish va sakrash mashqlarini mashg'ulot jarayoniga maqsadli, izchil va individual yondashuv asosida kiritish orqali talabalarining jismoniy tayyorgarlik darajasini oshirish mumkinligi asoslangan. Tadqiqot natijalari yengil atletika mashqlaridan foydalanish kuch sifatini rivojlantirish bilan bir qatorda harakat koordinatsiyasi, tezkorlik va kuch-chidamlilik ko'rsatkichlarini takomillashtirishga ham xizmat qilishini ko'rsatadi.

Kalit so'zlar: talabalar, kuch sifati, yengil atletika, yugurish mashqlari, sakrash mashqlari, tezkor-kuch, jismoniy tayyorgarlik, kuch-chidamlilik.

ИСПОЛЬЗОВАНИЕ БЕГОВЫХ И ПРЫЖКОВЫХ УПРАЖНЕНИЙ ЛЁГКОЙ АТЛЕТИКИ В СОВЕРШЕНСТВОВАНИИ СИЛОВЫХ КАЧЕСТВ СТУДЕНТОВ

Аннотация: В статье рассматриваются педагогические возможности использования беговых и прыжковых упражнений лёгкой атлетики в совершенствовании силовых качеств студентов высших образовательных учреждений. Проанализировано значение бега на короткие дистанции, стартовых ускорений, бега с максимальной скоростью, прыжков в длину с места и с разбега, прыжков вверх, а также многократных прыжковых упражнений в развитии силовых и скоростно-силовых способностей студентов. Обоснована целесообразность включения беговых и прыжковых упражнений в учебно-тренировочный процесс на основе целенаправленного, последовательного и индивидуального подхода. Результаты исследования показывают, что систематическое применение средств лёгкой атлетики способствует не только совершенствованию силовых качеств, но и

повышению уровня быстроты, координационных способностей и силовой выносливости студентов.

Ключевые слова: студенты, силовые качества, лёгкая атлетика, беговые упражнения, прыжковые упражнения, скоростно-силовые способности, физическая подготовленность, силовая выносливость.

THE USE OF RUNNING AND JUMPING EXERCISES IN ATHLETICS TO IMPROVE STUDENTS' STRENGTH QUALITIES

Annotation: This article examines the pedagogical potential of using running and jumping exercises in athletics to improve the strength qualities of university students. The study analyzes the role of short-distance running, acceleration from the start, maximum-speed running, standing and running long jumps, vertical jumps, and repeated jumping exercises in developing students' strength and speed-strength abilities. The study substantiates the effectiveness of incorporating running and jumping exercises into the educational and training process through a purposeful, systematic, and individualized approach. The findings indicate that the systematic use of athletics exercises contributes not only to the improvement of strength qualities but also to the development of speed, motor coordination, and strength endurance. The proposed approach can be effectively applied in physical education classes in higher education institutions to enhance students' overall physical preparedness.

Keywords: students, strength qualities, athletics, running exercises, jumping exercises, speed-strength abilities, physical fitness, strength endurance.

INTRODUCTION

In the current higher education system, enhancing students' physical fitness, developing their core physical attributes, and fostering a healthy lifestyle are among the essential objectives of physical education. Within the framework of physical fitness, the attribute of strength holds a distinct position. Strength manifests as the ability of muscles to overcome or resist external resistance and serves as a vital physiological and pedagogical foundation for the effective execution of various human physical activities. Consequently, identifying effective means and methods for developing strength in higher education institutions remains a pressing scientific and pedagogical issue.

Athletics exercises offer extensive opportunities for improving students' physical fitness. In particular, running and jumping exercises contribute to the comprehensive development of strength, speed, and speed-strength capabilities. Sprinting—encompassing acceleration from the start and running at maximum velocity—places a high level of load on the leg muscles. Jumping exercises, meanwhile, serve as an effective means for developing the ability of muscles to generate great force in a short period—that is, for building explosive power. J. Haff and N. Triplett emphasize that the purposeful and gradual organization of training loads is essential for the effective development of physical qualities.

Systematically incorporating running and jumping exercises into physical education sessions can improve not only students' strength, but also their movement coordination, speed, and overall physical fitness. In this regard, it is of great importance to scientifically examine the pedagogical potential of track and field exercises and to adapt them to the students' level of physical fitness.

The purpose of this study is to determine the effectiveness of using track and field running and jumping exercises to improve students' strength, and to substantiate the pedagogical possibilities for incorporating these exercises into physical education sessions.

[2].

ANALYSIS OF LITERATURE AND METHODS

The study aimed to determine the effectiveness of using running and jumping exercises—drawn from track and field—in improving the strength qualities of students. The research process employed a variety of methods, including the analysis of scientific and methodological literature, pedagogical observation, pedagogical testing, experimental trials, and mathematical-statistical analysis. The integrated application of these methods helped ensure the objectivity of the research results.

Students enrolled at a higher education institution participated in the study. Participants were divided into an experimental group and a control group, with physical fitness levels as closely matched as possible. While the control group continued with standard physical education sessions, the experimental group engaged in a structured program of running and jumping exercises designed to develop strength and explosive-strength qualities.

The core content of the practical sessions consisted of short-distance sprints (20–30 meters), acceleration from a starting position, high-speed running (30–60 meters), repeated sprints, standing long jumps, long jumps with a run-up, vertical

jumps, consecutive jumps (on one or both legs), and various multi-jump exercises. In selecting these exercises, the students' initial level of physical fitness, their capacity to handle the training load, and safety requirements were taken into account.

To assess strength and explosive-strength capabilities, control tests such as the standing long jump, vertical jump, 30-meter sprint, and 60-meter sprint were used. Each test was conducted under identical conditions during both the initial and final stages. Training load was managed through the number of repetitions, sets, distance, and rest intervals. The load was increased progressively.

The obtained results were processed using mathematical-statistical methods. The arithmetic mean ($\bar{X}$) and standard deviation (σ) for the groups were calculated, and the differences between the indicators were determined. The Student's t-test was employed to assess the statistical significance of the results. The research methodology made it possible to determine the effectiveness of the purposeful and systematic application of running and jumping exercises within physical education sessions. [5,6,7].

RESULTS AND DISCUSSION

It was determined that the systematic use of running and jumping exercises during the pedagogical experiment yielded positive results in developing students' strength and explosive strength. At the beginning of the experiment, no significant differences were observed between the control and experimental groups regarding their baseline physical fitness indicators. However, the consistent application of specifically selected running and jumping exercises throughout the experiment led to a more rapid improvement in physical performance indicators within the experimental group.

In the experimental group, the use of exercises such as short-distance sprints (20–30 meters), acceleration from the start, and maximum-speed running (30–60 meters) helped to mobilize leg muscle strength, increase movement speed, and develop the ability to generate high power within a short timeframe. Simultaneously, exercises including standing long jumps, running long jumps, vertical jumps, and consecutive (repeated) jumps proved to be effective tools for developing the explosive power of the lower extremities.

Table 1. Index of Test

Test indicators	Change in Group experience	Change in the oversight group
30 m running	high	medium
60 m runny	high	medium

Standing long jump	high	lower
Jumping high	high	medium
Rapid-response capability	high	medium

The results demonstrated that the combined use of running and jumping exercises has a comprehensive effect on the development of strength. In particular, the gradual increase in exercise load, along with the adjustment of the number of repetitions and rest intervals to suit the students' physical capabilities, ensured high effectiveness. Beyond developing strength, this approach also contributed to improvements in speed, coordination, and strength-endurance.

The obtained results align with scientific perspectives that emphasize the importance of purposefully incorporating fast and explosive movements into strength training (Haff & Triplett, 2016). Therefore, the pedagogically sound application of running and jumping exercises – drawn from track and field – serves as an effective means for enhancing students' physical fitness.

CONCLUSION

The results of the study demonstrated that utilizing running and jumping exercises from track and field is pedagogically effective for improving students' strength qualities. Short-distance running, acceleration from the start, and sprinting at maximum speed contributed to the development of the students' speed-strength capabilities, while jumping exercises had a positive impact on increasing the explosive power of the leg muscles.

During the experiment, a systematic, consistent, and step-by-step organization of exercises was identified as an important pedagogical condition. Adjusting the volume and intensity of the workload – while taking into account the students' individual levels of physical fitness – made it possible to enhance the effectiveness of the training sessions.

Furthermore, it has been determined that the integrated application of running and jumping exercises contributes to the development of physical attributes such as speed, movement coordination, and strength-endurance, in addition to strength itself. Consequently, it is recommended that this set of exercises be purposefully incorporated into physical education programs at higher education institutions. In future research, it would be appropriate to differentiate these exercises based on students' gender, age-related characteristics, and initial levels of physical fitness.

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