

METHODOLOGY FOR DEVELOPING SPEED-STRENGTH QUALITIES OF SCHOOLCHILDREN THROUGH ATHLETICS

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Abstract: this article explores a methodology for developing speed-strength qualities in schoolchildren through athletics. The study highlights the importance of incorporating athletic activities into physical education programs, presenting an experimental approach to improve students' physical capabilities. Results indicate significant improvements in speed and strength metrics, suggesting practical applications for educators and coaches.

Keywords: athletics, speed-strength, schoolchildren, physical education, training methodology, performance improvement.

YENGIL ATLETIKA ORQALI MAKTAB O'QUVCHILARINING TEZLIK-KUCH SIFATLARINI RIVOJLANTIRISH METODIKASI

Annotatsiya: mazkur maqolada yengil atletika orqali maktab o'quvchilarining tezkor-kuch sifatlarini rivojlantirish metodikasi tadqiq etilgan. Tadqiqotda yengil atletik mashg'ulotlarni jismoniy tarbiya dasturlariga qo'shishning ahamiyati va talabalar jismoniy imkoniyatlarini oshirishga oid eksperimental yondashuv ko'rsatilgan. Natijalar tezlik va kuch ko'rsatkichlarining sezilarli yaxshilanishini ko'rsatdi, bu esa o'qituvchilar va murabbiylar uchun amaliy ahamiyatga ega.

Kalit so'zlar: yengil atletika, tezkor-kuch, maktab o'quvchilari, jismoniy tarbiya, mashg'ulot metodikasi, natijalarni yaxshilash.

МЕТОДИКА РАЗВИТИЯ СКОРОСТНО-СИЛОВЫХ КАЧЕСТВ ШКОЛЬНИКОВ СРЕДСТВАМИ ЛЕГКОЙ АТЛЕТИКИ

Аннотация: в статье исследуется методика развития скоростно-силовых качеств у школьников через лёгкую атлетику. Подчёркивается важность включения лёгкоатлетических упражнений в программы физического воспитания и представляется экспериментальный подход к улучшению физических возможностей учащихся. Результаты показывают значительные улучшения показателей скорости и силы, что имеет практическое значение для учителей и тренеров.

Ключевые слова: лёгкая атлетика, скоростно-силовые качества, школьники, физическое воспитание, методика тренировки, улучшение результатов

INTRODUCTION

The development of physical fitness in schoolchildren is a cornerstone of modern educational systems, as it contributes to their overall health and well-being. Among the various physical attributes, speed-strength qualities are particularly crucial. These qualities, which encompass the ability to produce maximal force in minimal time, form the foundation of athletic performance and are essential for numerous sports and everyday activities. However, the lack of structured methodologies in school physical education programs often leaves these attributes underdeveloped [1].

Athletics, as a universal and versatile sport, provides an excellent platform to enhance speed-strength qualities. Exercises like sprints, jumps, and throws can be tailored to match the

abilities and developmental stages of school-aged children. Despite its potential, the integration of athletics into school curricula remains limited, largely due to insufficient training methods and the absence of systematic approaches tailored to young learners.

This article addresses these gaps by proposing a comprehensive methodology for improving speed-strength qualities in schoolchildren through athletics. The approach involves designing age-appropriate training regimens, incorporating progressive overload principles, and emphasizing technique and motivation. By adopting this methodology, educators and coaches can create engaging and effective programs that not only enhance physical performance but also foster a lifelong appreciation for fitness [2].

The study evaluates the effectiveness of this methodology through an experimental design, comparing pre- and post-intervention outcomes. It aims to provide practical insights and evidence-based recommendations for physical educators, ensuring that every child has the opportunity to achieve their full physical potential.

MATERIALS AND METHODS

This study employed an experimental design to evaluate the effectiveness of a methodology aimed at developing speed-strength qualities in schoolchildren through athletics. The research was conducted over a 12-week period, involving 60 students aged 12–14 years from a local secondary school. Participants were randomly assigned to two groups: an experimental group (n=30) and a control group (n=30).

The experimental group underwent a specially designed athletics-based training program, which focused on improving speed-strength qualities. The training regimen included sprint drills, plyometric exercises (e.g., box jumps, bounding), and resistance exercises using body weight and light weights. Sessions were conducted three times per week, with each session lasting approximately 60 minutes. Intensity and complexity of the exercises were progressively increased based on participants' adaptations.

The control group, meanwhile, continued with their regular physical education classes, which included general fitness activities but lacked targeted speed-strength development exercises.

Data Collection and Measurement. Speed was assessed using a 30-meter sprint test, while strength was measured through standing long jump and vertical jump tests. Pre- and post-intervention results were recorded for both groups.

Statistical Analysis. The collected data were analyzed using paired t-tests and ANOVA to compare intra-group and inter-group changes. A significance level of $p < 0.05$ was considered to determine meaningful differences between the groups.

This methodology ensured a controlled environment for assessing the impact of athletics-based interventions, providing a robust framework for evaluating their effectiveness in enhancing speed-strength qualities in schoolchildren [2].

RESULTS

The study demonstrated significant improvements in speed-strength qualities among the experimental group compared to the control group over the 12-week intervention period.

Speed Performance. The results of the 30-meter sprint test revealed that the experimental group showed an average improvement of 12% in sprint times (pre-test: 6.2 ± 0.4 seconds, post-test: 5.5 ± 0.3 seconds), compared to only 3% improvement in the control group (pre-test: 6.3 ± 0.5 seconds, post-test: 6.1 ± 0.4 seconds). The difference between the groups was statistically significant ($p < 0.05$).

Strength Performance. For the standing long jump, the experimental group recorded a mean improvement of 15% in jump distance (pre-test: 1.85 ± 0.12 meters, post-test: 2.13 ± 0.14 meters), while the control group exhibited only a 4% improvement (pre-test: 1.83 ± 0.10 meters, post-test: 1.90 ± 0.12 meters). Similarly, the vertical jump test showed a 14% increase in height for the experimental group (pre-test: 30.5 ± 2.5 cm, post-test: 34.8 ± 2.7 cm), compared to a 5% improvement in the control group (pre-test: 30.1 ± 2.3 cm, post-test: 31.6 ± 2.4 cm).

Overall Comparison. The experimental group's consistent and significantly higher improvements in both speed and strength metrics underscore the effectiveness of the athletics-based training methodology. In contrast, the control group's marginal gains suggest that general physical education activities are less effective in targeting speed-strength development [5,7].

These findings validate the proposed methodology as a practical and impactful approach for enhancing speed-strength qualities in schoolchildren.

DISCUSSION

The findings of this study highlight the effectiveness of an athletics-based training methodology in developing speed-strength qualities among schoolchildren. The experimental group demonstrated significant improvements in both speed and strength performance metrics, confirming the hypothesis that structured athletic exercises can substantially enhance physical capabilities in young learners.

Comparison with Existing Research. The results align with prior studies emphasizing the benefits of targeted physical training, such as sprinting and plyometric exercises, in improving athletic performance. For example, plyometrics have been shown to enhance neuromuscular coordination and explosive power, which are essential for both speed and strength. The observed 12–15% improvements in the experimental group are consistent with findings in similar age groups, where progressive overload and tailored training regimens yielded comparable outcomes [5,6,7].

Practical Implications. One of the key takeaways is the applicability of this methodology in school settings. Physical educators and coaches can adopt the proposed exercises to create engaging and effective training programs. By integrating these activities into physical education curricula, schools can address the lack of specialized training that often limits the development of speed-strength qualities.

Limitations and Recommendations. The study, however, had certain limitations. It focused exclusively on students aged 12–14 years; thus, the results may not be generalizable to other age groups. Additionally, the 12-week duration, while sufficient for initial gains, may not capture long-term benefits. Future research could extend the duration and include diverse populations to provide broader insights into the methodology's effectiveness.

In conclusion, athletics-based training presents a valuable tool for enhancing physical development in schoolchildren, with significant implications for education and sports programs.

CONCLUSION

This study demonstrates the significant impact of an athletics-based training methodology on the development of speed-strength qualities in schoolchildren. The experimental group, which participated in targeted exercises such as sprints, plyometrics, and resistance training, showed marked improvements in both speed and strength metrics compared to the control group engaged in standard physical education activities.

These findings underscore the potential of integrating structured athletic programs into school curricula to address gaps in physical education. The improvements observed in the

experimental group highlight the effectiveness of progressive overload, exercise specificity, and age-appropriate training in fostering physical fitness among young learners. Such programs not only enhance athletic performance but also promote long-term engagement with physical activity, contributing to overall health and well-being.

Despite its strengths, the study acknowledges certain limitations, such as the focus on a specific age group and the relatively short duration of the intervention. Future research could explore the long-term effects of athletics-based training and its applicability to different age groups and fitness levels.

In conclusion, incorporating athletics into physical education offers a practical and impactful approach to improving speed-strength qualities in schoolchildren. This methodology provides educators and coaches with a valuable framework for fostering physical development, laying the foundation for lifelong fitness and athletic excellence.

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