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DEVELOPMENT OF QUICK POWER QUALITIES OF STUDENTS IN RUNNING AND LONG JUMP

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ABSTRACT

This article focuses on the development of quick power qualities in students for running and long jump. It provides insights and strategies to enhance power output, speed, and explosiveness, which are essential for success in these athletic disciplines. The article emphasizes key factors such as nutrition, recovery, plyometric progression, strength-to-weight ratio, mental conditioning, and cross-training. It also highlights the significance of sleep, video analysis, and long-term athlete development. Additionally, the article discusses sport-specific conditioning, resistance training, core strengthening, speed and agility drills, flexibility and mobility training, prehabilitation exercises, interval training, track and field equipment, and recovery strategies. By incorporating these principles and practices, educators and coaches can help students optimize their power qualities and reach their athletic potential in running and long jump.

Keywords: *Quick power qualities, running, long jump, power development, speed, explosiveness, nutrition, recovery, plyometric progression, strength-to-weight ratio, mental conditioning, cross-training, sleep, video analysis, long-term athlete development, sport-specific conditioning, resistance training, core strengthening, speed and agility drills, flexibility and mobility training, prehabilitation exercises, interval training, track and field equipment, recovery strategies.*

АННОТАЦИЯ

Данная статья посвящена развитию быстро-силовых качеств у студентов в беге и прыжках в длину. Он предоставляет идеи и стратегии для повышения выходной мощности, скорости и взрывной силы, которые необходимы для успеха в этих спортивных дисциплинах. В статье подчеркиваются ключевые факторы, такие как питание, восстановление, плиометрический прогресс, соотношение силы и веса, психическая подготовка и перекрестные тренировки. В нем также подчеркивается важность сна, видеоанализа и долгосрочного развития спортсменов. Кроме того, в статье обсуждаются специальные виды спорта, тренировки с отягощениями, укрепление корпуса, упражнения на скорость и ловкость, тренировки гибкости и подвижности, предварительные упражнения, интервальные тренировки, легкоатлетическое оборудование и

стратегии восстановления. Внедряя эти принципы и практики, преподаватели и тренеры могут помочь учащимся оптимизировать свои силовые качества и реализовать свой спортивный потенциал в беге и прыжках в длину.

Ключевые слова: *Быстросиловые качества, бег, прыжки в длину, развитие мощности, скорость, взрывчатость, питание, восстановление, плиометрическая прогрессия, соотношение силы и веса, психическая подготовка, перекрестные тренировки, сон, видеоанализ, долгосрочное развитие спортсменов. Специализированная спортивная подготовка, тренировки с отягощениями, укрепление корпуса, упражнения на скорость и ловкость, тренировка гибкости и подвижности, предварительные упражнения, интервальные тренировки, легкоатлетическое оборудование, стратегии восстановления.*

ANNOTATSIYA

Ushbu maqola o‘quvchilarda yugurish va uzunlikka sakrash uchun tezkor kuch sifatlarini rivojlantirishga qaratilgan. U ushbu sport fanlarida muvaffaqiyatga erishish uchun zarur bo‘lgan quvvat ishlab chiqarish, tezlik va portlash qobiliyatini oshirish uchun tushuncha va strategiyalarni taqdim etadi. Maqolada ovqatlanish, tiklanish, plyometrik progressiya, kuch-vazn nisbati, aqliy konditsionerlik va o‘zaro mashg‘ulotlar kabi asosiy omillar ta’kidlangan. Shuningdek, u uyqu, video tahlili va sportchining uzoq muddatli rivojlanishining ahamiyatini ta’kidlaydi. Bundan tashqari, maqolada sportga xos konditsionerlik, qarshilik mashqlari, yadroni kuchaytirish, tezlik va chaqqonlik mashqlari, moslashuvchanlik va harakatchanlik mashqlari, reabilitatsiya mashqlari, intervalli mashg‘ulotlar, yengil atletika uskunalari va tiklanish strategiyalari muhokama qilinadi. Ushbu tamoyillar va amaliyotlarni o‘z ichiga olgan holda, o‘qituvchilar va murabbiylar o‘quvchilarga o‘zlarining kuch sifatlarini optimallashtirishga va yugurish va uzunlikka sakrashda sport salohiyatiga erishishga yordam berishlari mumkin.

Kalit so‘zlar: *Tez quvvat sifatlari, yugurish, uzunlikka sakrash, quvvatni rivojlantirish, tezlik, portlash, ovqatlanish, tiklanish, pliometrik progressiya, kuch-vazn nisbati, aqliy konditsionerlik, o‘zaro mashg‘ulotlar, uyqu, video tahlil, sportchining uzoq muddatli rivojlanishi, sportga xos konditsionerlik, qarshilik mashqlari, yadroni mustahkamlash, tezlik va chaqqonlik mashqlari, moslashuvchanlik va harakatchanlik mashqlari, reabilitatsiya mashqlari, intervalli mashg‘ulotlar, yengil atletika uskunalari, tiklanish strategiyalari.*

INTRODUCTION:

The development of quick power qualities in students is of utmost importance for success in running and long jump, two athletic disciplines that require explosive speed and strength. Quick power refers to the ability to generate maximum force rapidly, enabling athletes to accelerate quickly, maintain high speeds, and exhibit explosive movements during jumps. This article aims to provide insights and strategies for

educators and coaches to effectively develop the quick power qualities of students in running and long jump.

Enhancing quick power qualities involves a multifaceted approach that encompasses various factors. Nutrition plays a vital role in providing the energy and nutrients necessary for optimal performance. Proper hydration and a well-balanced diet support muscle function and recovery. Adequate recovery is essential for adaptation and growth, and strategies such as foam rolling, cold-water immersion, and massage therapy aid in the regeneration of muscles and tissues[1].

Plyometric progression is a fundamental component in developing quick power qualities. Gradually advancing from basic exercises to more complex ones allows students to build a solid foundation and improve their power output. Additionally, maintaining an optimal strength-to-weight ratio is crucial, as excess body weight can impede power production. Students should be encouraged to manage their weight through appropriate nutrition and regular exercise.

Mental conditioning plays a significant role in the development of quick power qualities. Visualization, goal setting, positive self-talk, and stress management techniques foster mental focus, confidence, and resilience. These psychological skills enhance an athlete's ability to generate maximal power during training and competition.

Periodic testing provides valuable feedback on students' progress in developing quick power qualities. Standardized tests, such as sprint time trials, vertical jump height measurements, and long jump distances, help evaluate improvements over time. Regular testing motivates students and enables coaches to tailor training programs based on individual strengths and weaknesses.

Cross-training activities that complement running and long jump training contribute to overall fitness, injury prevention, and performance enhancement. Engaging in activities such as cycling, swimming, or resistance training helps develop strength, endurance, and movement patterns that transfer to the primary disciplines. The subsequent sections of this article will delve into specific training strategies and techniques aimed at optimizing the development of quick power qualities in students for running and long jump. By implementing these strategies, educators and coaches can guide students to reach their full athletic potential while minimizing the risk of injuries and promoting overall well-being[2].

LITERATURE ANALYSIS:

The development of quick power qualities in students for running and long jump has been a subject of interest in sports science and athletic performance research.

Numerous studies have investigated the factors and training methods that contribute to enhancing power output, speed, and explosiveness in these disciplines.

Research has shown that a combination of strength training and plyometric exercises is effective in improving power qualities in athletes. Studies by McBride et al. (2002) and Suchomel et al. (2017) have demonstrated the positive effects of resistance training, including exercises such as squats and deadlifts, on muscular strength and power development. Plyometric exercises, such as depth jumps and bounding, have also been shown to enhance reactive strength and power output (Markovic et al., 2007; Turner et al., 2003).

Moreover, sport-specific conditioning has been identified as a crucial aspect of developing quick power qualities in running and long jump. Research by Sáez de Villarreal et al. (2012) has highlighted the importance of incorporating interval training and sprint-specific drills to improve acceleration, speed, and power in sprinting events. Similarly, studies by Jensen et al. (2008) and Bobbert et al. (1996) have emphasized the significance of specific plyometric exercises and approach run drills in enhancing the performance of long jump athletes[3].

METHODS:

To develop quick power qualities in students for running and long jump, a comprehensive training program should be implemented. The following methods are recommended based on the existing literature and best practices in sports performance:

1. Needs Assessment: Conduct a thorough assessment of students' current power qualities, including their strength levels, speed capabilities, and jumping ability. This assessment can involve tests such as vertical jump tests, sprint time trials, and strength assessments.

2. Periodization: Implement a periodized training program that incorporates different training phases, such as a preparatory phase, a strength and power phase, and a peaking phase. This allows for progressive overload, adaptation, and optimal performance during specific periods.

3. Resistance Training: Include resistance exercises targeting major muscle groups involved in running and long jump, such as squats, deadlifts, lunges, and step-ups. Use both bilateral and unilateral exercises to address muscle imbalances and improve stability.

4. Plyometric Training: Integrate plyometric exercises that focus on explosive power and reactive strength, such as depth jumps, bounding, and hurdle hops. Begin with basic exercises and progress to more advanced variations as students improve their power output.

5. Speed and Agility Drills: Incorporate drills that enhance acceleration, deceleration, change of direction, and running mechanics. Cone drills, ladder drills, shuttle runs, and sprint-specific drills can be included to improve quickness and speed.

6. Sport-Specific Conditioning: Implement interval training sessions that simulate the demands of running and long jump events. This can involve high-intensity sprint intervals, hill sprints, and approach run drills combined with take-off simulations for long jump.

7. Core Strengthening: Include exercises targeting the core muscles to improve stability and power transfer during running and jumping movements. Planks, Russian twists, medicine ball throws, and stability ball exercises are effective in developing core strength.

8. Flexibility and Mobility Training: Incorporate dynamic stretching exercises and mobility drills to enhance joint mobility, muscle flexibility, and movement efficiency. Leg swings, hip rotations, and dynamic lunges are examples of exercises that can improve flexibility and reduce the risk of injuries.

9. Prehabilitation Exercises: Include exercises that target specific muscle groups and movement patterns to prevent injuries and improve durability. Calf raises, glute bridges, lateral band walks, and rotator cuff exercises are beneficial for injury prevention and performance enhancement.

10. Recovery Strategies: Optimize recovery through active recovery activities, such as low-intensity jogging, swimming, or cycling, to facilitate muscle regeneration and reduce fatigue. Implement techniques like foam rolling, self-myofascial release, and stretching to enhance recovery between training sessions. These methods should be adapted and tailored to the specific needs and abilities of the students. Regular monitoring and adjustments should be made based on individual progress and feedback. By utilizing these evidence-based methods, educators and coaches can effectively enhance the quick power qualities of students in running and long jump[4].

DISCUSSION:

The development of quick power qualities in students for running and long jump is a critical aspect of athletic performance. Through a comprehensive training program that incorporates various methods and strategies, educators and coaches can effectively enhance students' power output, speed, and explosiveness in these disciplines. In this discussion section, we will explore the implications of the literature analysis and methods presented earlier and discuss their practical significance.

One of the key findings from the literature analysis is the importance of resistance training in developing power qualities. Studies have consistently shown that resistance

exercises targeting major muscle groups, such as squats and deadlifts, can improve muscular strength and power (McBride et al., 2002; Suchomel et al., 2017). By incorporating resistance training into the training program, educators and coaches can help students build a strong foundation and maximize their power potential.

Plyometric exercises have also been identified as effective tools for enhancing power output and reactive strength. Research has demonstrated that exercises like depth jumps and bounding can improve power production and movement efficiency (Markovic et al., 2007; Turner et al., 2003). By progressively incorporating plyometric exercises into the training program, students can enhance their ability to generate explosive force and improve their performance in running and long jump[5].

Sport-specific conditioning is another crucial aspect to consider in the development of quick power qualities. Studies have highlighted the significance of interval training and sprint-specific drills in improving acceleration, speed, and power in running events (Sáez de Villarreal et al., 2012). Similarly, specific plyometric exercises and approach run drills have been shown to benefit long jump athletes (Jensen et al., 2008; Bobbert et al., 1996). Integrating these sport-specific conditioning exercises into the training program allows students to improve their event-specific skills and performance.

The methods discussed also emphasize the importance of core strengthening, flexibility and mobility training, and prehabilitation exercises. A strong and stable core is essential for power transfer and injury prevention during running and jumping movements. Flexibility and mobility training help improve joint range of motion and movement efficiency, while prehabilitation exercises target specific muscle groups and movement patterns to prevent injuries. By incorporating these elements into the training program, educators and coaches can enhance students' overall athleticism and reduce the risk of injuries.

Recovery strategies play a vital role in optimizing training adaptations and minimizing fatigue and injuries. Implementing appropriate recovery techniques, such as active recovery activities, foam rolling, and stretching, can aid in the regeneration of muscles and reduce muscle soreness. By prioritizing recovery, educators and coaches can ensure that students are adequately prepared for subsequent training sessions and competitions.

It is important to acknowledge that individual differences exist among students in terms of their response to training and their specific needs. Therefore, a personalized approach to training is crucial. Regular monitoring and assessment of students' progress, along with adjustments to the training program based on individual feedback, are essential for optimizing results. In conclusion, the development of quick power

qualities in students for running and long jump requires a comprehensive and tailored training program. By incorporating resistance training, plyometric exercises, sport-specific conditioning, core strengthening, flexibility and mobility training, and recovery strategies, educators and coaches can effectively enhance students' power output, speed, and explosiveness. It is important to continually adapt and refine the training program based on individual progress and feedback to ensure optimal development and minimize the risk of injuries. Ultimately, by implementing evidence-based methods and strategies, educators and coaches can help students reach their full athletic potential in running and long jump[6].

I apologize for any confusion, but as an AI language model, I don't have real-time data or the ability to conduct studies. I don't have access to specific results for the development of quick power qualities in students for running and long jump. The "Results" section typically presents the findings of a study or experiment conducted by researchers.

RESULTS:

While specific research results are not available for this article, implementing a comprehensive training program targeting the development of quick power qualities in students for running and long jump is expected to yield several positive outcomes. By incorporating the methods and strategies discussed in the earlier sections, educators and coaches can anticipate the following potential results:

1. Improved Power Output: Through resistance training and plyometric exercises, students can expect to enhance their power production capabilities. Increased muscular strength and explosive force generation can lead to improved performance in both running and long jump events.

2. Enhanced Speed and Acceleration: Sport-specific conditioning exercises, including interval training and sprint-specific drills, can contribute to improvements in students' speed and acceleration abilities. This can translate to faster running times and more explosive starts and transitions during long jump approaches.

3. Increased Jumping Ability: The integration of plyometric exercises and specific long jump training drills can help students develop greater reactive strength and jumping power. This can result in improved take-off techniques, increased height and distance in jumps, and overall better performance in long jump events.

4. Enhanced Movement Efficiency: Core strengthening, flexibility, and mobility training can improve students' movement patterns and overall biomechanical efficiency. This can lead to better coordination, stability, and body control, ultimately optimizing their running and jumping mechanics.

5. Reduced Risk of Injuries: The inclusion of prehabilitation exercises and the emphasis on recovery strategies can contribute to injury prevention and overall student well-being. Strengthening specific muscle groups and implementing appropriate recovery techniques can minimize the risk of common injuries associated with running and jumping activities. It is important to note that the specific results achieved may vary among individuals due to factors such as baseline fitness levels, training adherence, and genetic predispositions. Regular monitoring and assessments of students' progress will help gauge the effectiveness of the training program and allow for necessary adjustments[7].

CONCLUSION:

In conclusion, the development of quick power qualities in students for running and long jump is a multifaceted process that requires a comprehensive training program. By incorporating various methods and strategies, educators and coaches can effectively enhance students' power output, speed, and explosiveness, ultimately improving their performance in these athletic disciplines.

Through the literature analysis, it is evident that resistance training, plyometric exercises, sport-specific conditioning, core strengthening, flexibility and mobility training, and recovery strategies are all vital components in developing quick power qualities. These methods have been supported by research and have shown positive effects on power development, speed enhancement, and movement efficiency.

By implementing a periodized training program that includes different phases, such as preparatory, strength and power, and peaking phases, students can experience progressive overload, adaptation, and optimal performance during specific periods. Regular monitoring and adjustments based on individual progress and feedback are essential to tailor the training program to meet students' specific needs and abilities.

It is important to acknowledge that individual differences exist among students in terms of their response to training and their specific requirements. Therefore, a personalized approach that considers each student's strengths, weaknesses, and goals is crucial for maximizing results.

While specific research results were not presented in this article, the expected outcomes include improved power output, enhanced speed and acceleration, increased jumping ability, enhanced movement efficiency, and reduced risk of injuries. However, it is important to note that the actual results achieved may vary among individuals due to various factors. In summary, the development of quick power qualities in students for running and long jump requires a well-rounded and tailored training program. By incorporating the discussed methods and strategies, educators and coaches can provide

students with the necessary tools to enhance their athletic performance. By fostering a supportive and motivating environment, educators and coaches can inspire students to embrace the training process, work towards their goals, and unlock their full potential in running and long jump.

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