

METHODOLOGY FOR DEVELOPING ENDURANCE IN HIGH SCHOOL ATHLETICS

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Abstract:Endurance is a crucial component of athletic performance, and its development is essential for high school students participating in athletics clubs. A comprehensive methodology for educating high school students in endurance training can significantly contribute to their overall physical well-being and athletic success. In this article, we explore the essential components of such a methodology, focusing on the specific needs and considerations for high school students within the athletics club environment.

Key words:High school students, athletic, physiological aspects, fitness level, training programs, physical capabilities.

Introduction:The first step in developing a methodology for endurance education is to understand the physiological aspects of endurance. Endurance training involves the improvement of cardiovascular and respiratory systems, muscular strength, and overall stamina. High school students, especially those involved in athletics clubs, require a tailored approach that considers their developmental stage, physical capabilities, and safety. Continuous method means load with constant level of intensity or speed. The load lasts usually for longer than 30 minutes (up to several hours). This method is used to develop basic (general) endurance, mixed aerobic-anaerobic metabolism, or to maintain the level of reached endurance adaptation. It is a form of speed training that can be effective in improving an individual's speed and endurance. Interval Training Method: Interval Training Method is a method to develop endurance. It is a type of training that involves a series of low to high-intensity exercise workouts interspersed with rest of relief periods [1]. The answer is very much the same: you need to complete a mix of high-intensity and low-intensity training sessions that include both strength training and cardio. For example, go to the gym three days a week to complete a 60-minute workout that includes weight lifting, rope pulling, jogging, and more. High-intensity interval training (HIIT) is an extremely time effective and research proven, endurance training method. HIIT workouts are particularly effective at developing maximal aerobic capacity (VO_2max), pulling up the lactate threshold, enhancing exercise efficiency and endurance exercise performance.

These 3 attributes are the keys to improving your endurance alongside your normal cardio routine:

- 1: Combine Strength Training Days with Cardio. ...
- 2: Try Fast-Paced, High Intensity Interval Training (HIIT) ...
- 3: Cut Down the Break Between Sets.

It is the ability of the muscle to sustain localized muscle group activity for extended period of time. For example, long distance running. Methods of endurance development: There are three methods of developing endurance: a Continuous method b Interval training method and c Fartlek training method.

These four types of endurance play an important role in our Movement Health continuum.

Cardiovascular endurance.

Muscular Endurance Training.

Postural Endurance.

Mental endurance- the grit factor.

Before initiating any endurance training program, a thorough assessment of each student's current fitness level is crucial. This assessment can include cardiovascular fitness tests, endurance performance evaluations, and medical screenings to ensure the students are healthy and capable of engaging in endurance training [2]. Once the assessment is complete, specific, measurable, achievable, relevant, and time-bound (SMART) goals should be set in collaboration with the students to track their progress effectively. The primary method for developing speed is performing proper movement technique of a specific motor ability. The speed of performing an acquired skill increases depending on the quality of the skill. At the beginning of motor learning, the athlete should perform activities at submaximal speed to fix correct mechanism [3].

Endurance training programs for high school students in athletics clubs should be carefully structured to balance intensity, frequency, and recovery. These programs should include a mix of aerobic exercises, such as running, swimming, or cycling, along with strength training and flexibility exercises. It's important to progressively increase the workload to avoid injury and burnout while gradually improving the students' endurance capabilities.

Figure 1. Phases of Endurance Training

Adequate nutrition and hydration play a vital role in enhancing endurance. High school students should be educated about the significance of a balanced diet rich in carbohydrates, proteins, healthy fats, vitamins, and minerals. Proper hydration before, during, and after training sessions is critical for performance and recovery, especially when engaging in endurance activities. Training for better



muscular endurance involves improving the performance of your slow-twitch muscle fibers. Performing low-load, high repetition exercises is the best way to do this [4]. Muscular endurance is the ability to continue contracting a muscle, or group of muscles, against resistance, such as weights or body weight, over a period of time. Increasing the performance of these muscles means they can continue to contract and work against these forces. This means going running, biking and hiking; climbing stairs and sprinting intervals; doing things that make you sweat heavy and breathe hard. Steady-state cardio and interval-based cardio both help to build cardio endurance, and it's best to incorporate both into your training plan. There are two main types of endurance training: specific endurance and general endurance. Specific endurance means that you focus on improving one particular exercise whereas general endurance means that you improve your overall performance with different types of exercises.



Figure 2. Methods of athlete development

In this method the principle of "effort and incomplete recovery" is followed. Interval training method is a special endurance training that involves burst of high intensity workout followed by low activity or rest. Incorporating injury prevention strategies and recovery protocols into the methodology is essential to ensure the well-being of high school students. Educating them about proper warm-up techniques, cool-down exercises, stretching, and the importance of rest and sleep can significantly reduce the risk of injuries and enhance their overall endurance development [5]. Basic endurance is – as the name suggests – the basis of your endurance. It describes the ability to maintain endurance performance over an extended period of time. Basic endurance training, also known as

aerobic training, improves oxygen flow within your body. Doing fewer repetitions with more weight will help you increase your strength. On the other hand, doing more repetitions with lighter weights will help you build endurance. You absolutely need both in your everyday life. Muscle strength is the ability to exert a maximal amount of force for a short period of time [6].

Endurance training also requires mental strength and resilience. High school students should be introduced to mental conditioning techniques such as goal setting, positive visualization, and stress management. Building a resilient mindset is crucial for overcoming challenges and pushing through physical barriers during training and competitions. Resistance training increases muscle strength by making your muscles work against a weight or force. Different forms of resistance training include using free weights, weight machines, resistance bands and your own body weight. A beginner needs to train two or three times per week to gain the maximum benefit. For sport and exercise, a greater level of muscular endurance will increase your athletic performance in endurance-based sports and enable you to perform at a higher capacity for longer and you'll experience less fatigue during exertion. She showed great endurance in the face of pain. She was almost at the limits of her endurance. Swimming a little farther each session will build endurance. The astronauts will undergo a series of trials to test their physical and mental endurance in space. Anywhere you have access to flat ground and you want to improve your speed endurance, you should sprint 60 to 80 meters, and rest for 3 to 5 minutes, for 8 to 10 reps. As you start to get in better shape you will bring the rest period down. You also want to time yourself to run the sprint [7].

Continuous monitoring and evaluation of the students' progress are integral parts of the methodology. Regular assessments, feedback sessions, and adjustments to the training programs based on individual performance are necessary to ensure the effectiveness of the endurance education.

Conclusion: The methodology for developing endurance in high school athletics clubs encompasses a holistic approach that addresses the physiological, psychological, and nutritional aspects of endurance training. By implementing tailored training programs, focusing on injury prevention, emphasizing proper nutrition and hydration, and promoting mental resilience, high school students can enhance their endurance capabilities effectively and safely. This comprehensive methodology not only contributes to their athletic success but also fosters a lifelong commitment to physical fitness and well-being.

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