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STRENGHT DEVELOPMENT OF CHILDREN AND YUNG ATHLETES

(Professional paper)

Katarina Herodek[1] and Cvetko Simonović[2]
[1]University of Niš, Faculty of sport and physical education, Niš, Serbia
[2]Economic and trade school, Vranje, Serbia

Abstract

It is believed that coaches working with children have to be highly qualified for their job. They have to know all about specificity of the different age groups they are working with in order to achieve the desired objectives. The purpose is the strength development as a necessary part of every physical and sports activities for children. The issue of this paper is the attempt to work through the theoretical approach to perform the possibilities of strength developing during the process of physical preparation as well as its role and importance in physical and sports development, not only for children who are not in the training process, but also for those who are actively involved in sports. The strength intensifies competitive success during the performance of sport skills. Early onset of force development is important for motor and physical development. Strength training in childhood is one of the conditions of good posture and injury prevention and is an important element of optimal fitness and conditioning preparation that is needed for the later development of the sport.

Keywords: *training*, *sports activities for children, physical preparation, sports development, physical development, motor abilities, anthropological characteristics, functional abilities, exercises with the load*

INTRODUCTION

There are a lot of coaches working with children or young athletes in different sport clubs. It is believed that coaches have to be highly qualified for their job. They have to know all about specificity of the different age groups they are working with in order to achieve the desired objectives. In the mean time, they should not negatively affect on the children's health, growth and development. The coaches who are working with children should not treat them as reduce adult athletes as that could lead to large errors in training. Children have different capacities and the different adaptation to the exercises; they differently respond to various training stimuli and kinesiology operators. It is possible to see a major difference in anthropological characteristics, body morphology, motor skills and functional abilities due to the different speed of biological development for the same age children.

The most suitable activities for the development of cardiovascular system are cyclic activities, or activities with a closed structure of movement, which is continually repeated. Examples of such activities include walking, running, swimming, aerobics, cycling, hiking etc. It is necessary to train at least 3 times a week. An important determinant of these activities is their intensity which has to be between 50 and 70% of maximum heart rate and duration has to be longer than 15 minutes. This is called aerobic zone, where the cells take the energy at the expense of oxygen, without producing the lactic acid and, after a certain time from the beginning of activity, activates the metabolism of fat.

The most suitable activities for the musculoskeletal system are the exercises with the load or weight, and flexibility exercises. Exercise with the load could be practiced at the gym, using weights or their own body weight. The relative increase of muscle mass is useful for several reasons. A larger quantity of muscle could increase the consumption of calories during the activity or the rest time. During the work out with the load, coaches have to be careful while implementing corrective exercise in order to strengthen weak regions of the body.

Purpose, problem, aim and task of the article

The purpose and the problem of this article are defined at the sphere on work out for strength developing for children and adolescents involved in sports.

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children. The problem is the attempt to work through the theoretical approach to perform the possibilities of strength developing during the process of physical preparation as well as its role and importance in physical and sports development, not only for children who are not in the training process, but also for those who are actively involved in sports.

The aim is identifying and analyzing opportunities that chosen ways of motor skills development could be offered in a younger age. Also, it could indicate the importance of systematic selection and execution of specific exercises in such type of training with children who are not active physically and active athletes.

The task of this paper is to introduce the basic guidelines for this type of training development and to indicate the benefits and contraindications which should be kept in mind duting the training process. In this paper the descriptive method was used for a detailed view physical and fitness development principles such as power develoment as one of the basic motor skills.

Motor skills development

While children grow and build up more muscles, their motor skills are, also, improved. Coaches should be aware that children will grow whether they are trained or not. Therefore, it is necessary to develop skills which would be, in future, priority for the athlete child. The consistent improvement for both boys and girls is obvious at the age of 6. to 18. years. During the period of puberty, higher values for the results in test for the upper body are shown for boys. A differences between boys and girls in test of speed (50 m sprint) and explosive power (long jump from place) and endurance (running on 1,5km) also exist after the puberty.

Strength development

Progressively increasing the volume of training and competitions, year after year, all muscle groups are more exposed to different micro-traumas, not only acute but also chronic injuries. The reason is the wrong approach to the training process. In the first instant, injuries could be prevented with strength training and flexibility exercises and with proper performing of sport techniques. The last task is for the sport coaches while the strength and flexibility training conditioning coaches have to care.

For people who are included in sports, the power causes more confusion and misunderstandings than any other motor skill. Younger age groups are trained how to perform various exercises with their own weight, light dumbbells, medicine ball, elastic band etc. With these exercises, at the age of 14-15 years, children can go on with gym work with trainers and weights.

In the beginning, they start working with minimal loads and higher repetitions, with proper selection of exercises, the emphasis is on technically proper form exercise and anatomical adaptation of musculosceletal system. This system is consisted of muscles and tendons attached to the bones, joints and ligaments.

Anatomical adaptation refers to the strength development of tendons and ligaments. Any strength training, without the proper anatomical of tendons and ligaments, could cause injury. Anatomical adaptation must precede all other forms of work in gym. It has to be the main connection between training and preventing injuries and that's why the adaptation is always performed during the preparation period for athletes of all subsequent age groups. Such training courses are the base of any fitness training and they are followed by development of the other motor skills.

The special emphasis is placed on the muscle strength development to the spine fixator of the lower back muscles, abdominal and pelvic muscles and they form a „bridge" between the lower and upper body. If they are not strong it often leads to various kind of pain in lower back and spine damage.

Examples of the periodization

Age category should be determined first, i.e. the level of sports development of a child such as characteristics and goals for that period of life. Pedemonte (1983) points out that the training periodization for children and young athletes should be viewed through the social and physiological and methodical approach. Faigenbaum (1993) recommended four parts in strength development for children. The first part lasts four weeks and it's aim is to introduce an athlete child with exercises and safety conditions. It would be better if there is exercises equipment made for children, but if there is not such equipment, the weights and exercises with your own body could be used. It is usually performed by a series of specific exercises, with 10-15 repetitions. Training is carried out 2-3 times a week for 20-30 minutes. The loads are light. The second part takes 4-8 weeks and it increases the load, but the number of repetitions remains 10-15. The duration of training increases, and takes 25-35 minutes. The third section introduces new exercises with free weights and those exercises are performed in 3 sets of 8-12 repetitions, 3 times a week. The fourth part could be initiated only by children who have perfected the techniques of performance of certain exercises and followed the directions and safety conditions at runtime. Exercises are performed in 3 sets of 6-10 repetitions and also have to introduce more advanced training exercises such as classic weight training and specific exercises for each sport.

Woloham and Micheli (1990) provide guidance for strength development for children through the different ages. Bompa (2005) distinguished the children's initial period for training (initiation) from 6 to 10 years, shaping athletes from 11 to 14 years, from15 to 18 years is the period of specialization and superior performance from 19 years and older. In accordance with this divisions Bompa provided a model for long term periodization of strength training.

Strength training with 8.-10. years children

The research shows that children of pre-puberty age can achieve significant improvement in strength due to neuromuscular changes rather than muscle hypertrophy (Fleck and Kramer, 1993). A lot of controversy relates to the possibility of damages in the area of epyphisys growth zone. Such injuries comes as a results of poor lifting techniques, lifting weights and lifting the maximum external load without professional supervision.

According to Kramer and Fleck (1993) strength training has greatest potential of any other action to prevent injuries. Another misconception is that strength training is only for body builders and weightlifters.

As evidence in a last twenty years, a large number of athletes improved their techniques using strength training but that only perform the selected sport skills. Strength training is an integral part of training for many athletes: football players, runners, tennis players and so on. This philosophy has changed now, so some people believe that no one can be fast before he gets strength, that no one can increase height of jump without strength training and as well as no one can throw or kick without strong hands.

Also, strength training has some medical benefits. The direct result of strength training is that bone mineral ingredients increase their functionality in later life as a preventive measure against osteoporosis. Therefore it should be part of physical education and training programs for young girls (The Committee for Sports Development Council of Europe, 1982, in Bompa, 2000).

The importance of strength training for children

The strength intensifies competitive success during the performance of sports skills. All movements in sport games must be performed to overcome the resistance to gravity (running, jumping) or the opponent and everything what will improve the strength will be of great benefit.

Strength training is integrated into the game and is important at this age as an additional training. Obtained in various studies that 50%-60% of children of school age have an error in posture (Weineck, 1998). The school is obviously not able to solve this problem today (chronic lack of exercise and the related force deficit). Lack of power is not present only in muscle but also in the hull of the entire musculature. According to the American College of Sports Medicine (1993), 50% of injuries occuring in children can be prevented in large part through well-designed strength training. Strength training showed improvement in bone development. In a studz lasting 10 months with girls ages 9-10 who performed aerobics and strength training have increased bone mineral density by 6,2%, compared with 1,4% of those girls who did not perform strength training (Morris, 1997). Strength is important for several reasons. In young athletes strength training is used for prophylaxis posture. Due to the lack of movement and sitting in school, young athletes are susceptible to poor posture, because the strength training is necessary to influence the strengthening of the hull. Early onset of force development is important for motor and physical development. One study showed over 40% increase in strength in boys and girls from 10 to 11 years after 9 weeks of training (Sewall and Micheli, 1986, Drabik, 1996). It is proven that the injury can be reduced with well-designed strength training, by increasing bone mass, creating a greater ability to absorb stress. Strength training in childhood is one of the conditions of good posture and injury prevention and is important element of optimal fitness and conditioning preparation that is needed for the later development of the sport.

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Correspondence:
Katarina Herodek
University of Niš
Faculty of Sport and Physical Education
Čarnojevića 10a, 18000 Niš, Serbia
E-mail: kata@fsfv.ni.ac.rs