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Basics of Prevention and Correction of Asthenic Syndrome in Young Footballers With Down Syndrome.

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ABSTRACT

Children with Down's syndrome are very susceptible to acute viral diseases, which are the leading cause of asthenic syndrome. Young footballers with Down syndrome are no exception. The appearance of this state negatively affects the health, productivity of football training and the desire to continue them. At the heart of the asthenic syndrome is the suppression of the functions of internal organs and the development of pre-pathological changes in them. Prevention of this condition should be based on the competent development of a young athlete's endurance in the course of clearly arranged exercises. The correction of the asthenic syndrome should be based on balanced exercises of physiotherapy exercises. Good results in the treatment of fatigue syndrome give a dosed application of sports massage. Also, a strong positive effect on the weakened organism of the athlete is provided by medical massage, acupressure and reflex massage. With asthenia, the use of cryotherapy, complexes of respiratory exercises, balneotherapy and hydrotherapy has been proved effective. Also in this case, some kinds of physiotherapy, applied alone or in combination with other means, give a good effect. It is clear that the asthenic syndrome is a pre-pathological process, the development of which is better not to be tolerated by a young athlete with Down syndrome, and when it appears, it is necessary to quickly and correctly eliminate this condition.

Keywords: asthenic syndrome, young athletes, football, Down's syndrome, prevention, correction.

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INTRODUCTION

Dosed physical exertion can provide a training and strengthening effect on the body [1,2]. In the case of correct selection of loads in humans [3,4] and in animals [5,6], the health effect of exercise is noted. They are used in many pathological conditions [7,8] and can improve the condition of even the disabled organism [9,10,11]. To achieve such results is possible at a strictly physiological level of stress [12, 13], which allows to overcome asthenic syndrome [14, 15]. This is true for healthy people and those with pathology, including chromosomal origin, the most common of which is Down's syndrome. With Down's syndrome, children are highly susceptible to respiratory viral infections followed by a long asthenic syndrome. Children with Down syndrome who are engaged in the mini-football section are no exception [16]. At the same time, the development of asthenia syndrome in them sharply reduces their physical capabilities and productivity of training and minimizes the desire of children and their parents to visit them [17]. This situation dictates the need to sum up approaches to the prevention and correction of asthenic syndrome in an athlete with Down's syndrome and to consider their effectiveness. In this regard, the goal of the work is to consider the basics of approaches to the prevention and correction of asthenic syndrome in young players with Down's syndrome.

INFRINGEMENTS IN AN ORGANISM OF SPORTSMEN AT AN ASTHENIA

Development of an asthenia causes various infringements in an organism of sportsmen. The most dangerous consequence of severe asthenia in young athletes with Down's syndrome is the development of signs of heart failure. This is due to the fact that during physical exertion there is a rapid growth of not only skeletal muscle mass, but also the myocardium. However, the growth of muscle mass occurs at a higher rate than the growth of blood vessels. This leads to the emergence of acute viral infections in the occurrence of ischemia in the myocardium and the danger of overt pathology [18].

Acute viral infection is accompanied by the formation of a large number of toxins and free radicals. During the formation of the asthenic syndrome, these products do not have time to be quickly disposed of and cause damage to the capillaries. The increase in lactic acid in the blood contributes to hypoxia, which leads to an even greater increase in the concentration of lactic acid in it. The result is a vicious circle. With the continuation of training, a deficiency of carbohydrates arises, against which the oxidation of fatty acids and glycerin is intensified, with the formation of a mass of ketone bodies that have toxic effects on the myocardium and brain [19, 20].

Against the background of asthenic syndrome, osteoarthritis and osteoarthritis, especially of knee joints, are often noted. Possible sprains, tendon ruptures, fractures, dystrophy of tendon tissues and plantar fasciitis. Often there are inflammations of the tendons. Quite often they can arise against the background of playing football [21].

With asthenic syndrome, athletes lose their activity and lose the ability to continue training. With asthenic syndrome [22], functional disturbances in the activity of the central nervous system are rapidly increasing. Asthenia develops due to progressive accumulation in the body of unfavorable functional shifts with a decrease in working capacity due to inadequate rest during and after work for a full recovery and normalization of body functions. The resulting chronic fatigue adversely affects physical and mental abilities. The most frequent complaints are sleep disturbances, irritability, reduced concentration of attention, difficulties in learning new information, etc. [22].

Thus, asthenia can cause a lot of pathological disorders in the body of athletes, including Down's syndrome, which is based on a decrease in the functional parameters of tissues and organs.

FUNDAMENTALS OF THE PREVENTION OF ASTHENIC SYNDROME IN YOUNG PLAYERS WITH DOWN SYNDROME

The most important method of preventing asthenic fatigue syndrome in young players with Down syndrome is the development of endurance. Only because of the high level of endurance can overcome the increasing fatigue in the process of competitive and training activities. To develop endurance is possible only when included in the training plan for special preparatory exercises. Effective combination of exercises of different duration in the program of a separate lesson. The intensity of training in this case should be close to

the planned competition or even slightly exceed it. If the exercises are short in duration, the number of approaches increases, and the rest intervals between them can be shortened. This is done so that the subsequent approach is performed against the backdrop of fatigue from the previous exercise. If the exercises are time-consuming, then rest intervals can be made more. In this case, the training effect has shifts during the exercises themselves, and not the result of the accumulation of the action of all exercises [23].

A mandatory condition for endurance training is the involvement of all muscle groups in the exercise. Practically their complete splitting with the release of a large amount of energy occurs at the most intensive work within 60-90 seconds. In this case, the concentration of ATP in muscles is reduced only to 60% of the level recorded at rest. However, powerful training leads to stimulation of not only alaktate anaerobic processes, but also lactate aerobic [24, 25].

A huge role in the prevention of asthenic syndrome is a full-fledged warm-up before each training session. This is necessary to achieve the optimal excitability of the central nervous system, mobilize the physiological functions of the body to perform more intensive muscular work and "warm up" the musculoskeletal apparatus before training. During the warm-up, the excitability of the nervous processes increases, the rate of their flow increases, the respiratory and cardiovascular processes increase, and the metabolism in the skeletal muscles is accelerated by raising the body temperature and opening the reserve capillaries. Physiologically justified warm-up should consist of a general and special part, depending on the type of exercises that enter it. Its optimum duration is 30-40 minutes. Training should begin no earlier than 10 minutes after the end of the warm-up session [26].

Thus, there are approaches to the prevention of asthenic syndrome, observing which you can achieve good results, preserving the health and functional condition of young athletes with Down's syndrome.

APPROACHES TO CORRECTION OF ASTHENIC SYNDROME IN YOUNG PLAYERS WITH DOWN SYNDROME

The correction of asthenic syndrome in young players with Down's syndrome should be based on the use of therapeutic physical training. It can be combined with physiotherapy procedures, massage and the influence of natural factors. It is a hygienic gymnastics, metered sports exercises (path finding, walking), games and swimming. Very effective in rehabilitation for asthenic syndrome is the morning hygienic gymnastics. It promotes a more rapid transition of the organism from the state of rest to the stage of wakefulness. In this case, there is an increase in general tone, increased activity of the cardiovascular, respiratory and nervous systems, activation of metabolism and muscle strengthening [26].

Often, sports massage is used to combat asthenic syndrome. Also give a good effect of therapeutic massage, acupressure and reflex massage. Deep sports massage leads to "warming up" of muscles, stimulates blood and lymph circulation in them, increases their tone. Such a massage removes asthenia, promotes the prevention of diseases of the musculoskeletal system [27].

Another type of correction of asthenic syndrome is cry therapy. On the human skin 2-3 minutes are exposed to liquid nitrogen. The temperature of the patient's skin surface instantaneously drops to 0 ° C. Then, due to intensive peripheral circulation, its temperature rises to 35 ° C. These changes lead to the stimulation of the immune system, to an increase in the metabolism in all organs and systems of the body, the stabilization of the hormonal background, the growth of muscle tone of any localization. The frequency of procedures is possible up to 4 daily for 20 days. There are no age and physiological limitations to this procedure. The effect comes in 5-10 minutes. Its duration is not less than 6-8 hours. In addition, when cry therapy is performed, endorphins are released, which compensates for psychological overloads from intense training and creates an incentive to increase motor activity [28].

Complexes of respiratory exercises that can be included in the training program in its beginning and in the final part for the development of respiratory muscles, restoration of the cardiovascular system work are effective [29]. The greatest muscular effort develops with a delay in breathing, a little less - with exhalation, at least - with inspiration. Therefore, it is recommended to combine exhalation with the power phases of muscle movements [30]. Balneotherapy and hydrotherapy, based on the effects of temperature, chemical and mechanical factors, are often used in the rehabilitation of young athletes with Down syndrome. First, they irritate the receptors, from which the impulses from the nervous fibers enter the brain. Secondly, a large

amount of biologically active substances is released by the stimulation of another group of skin and mucosal receptors. The positive effect is to stimulate the blood supply of tissues and oxidation-reduction processes in them, remove the products of pathological metabolism and cell disintegration, reduce traumatic edema and hemorrhage, and eliminate stagnant phenomena and trophic disorders in muscles [31].

In the fight against asthenic syndrome, some types of physiotherapy are possible. To such methods it is possible to carry an electro sleep, for which the action of DC pulses of rectangular shape with a frequency of 1 to 140 Hz, force up to 0.8 mA, is characteristic. The effect is carried out on the front-neck area by courses of 12-14 procedures. Electro stimulation of striated muscle is often used to stimulate and improve performance. After electrical stimulation of the muscles, there is an increase in blood flow by half. This increases the performance of skeletal muscles by increasing the aerobic potential, increasing the intensity of glycolysis and the mechanisms of resynthesis of ATP. After the electro stimulation session, the excitability and liability of the stimulated muscles are increased, and their speed-power capabilities are increased. Titanic muscle contractions and their subsequent relaxation, caused by electro stimulation, lead to an increase in the lymph flow in them. This increases the release of muscle from under-oxidized and toxic products. Also, electro stimulation promotes muscle hypertrophy by increasing the synthesis of RNA and proteins in them [32].

Additional methods for asthenic syndrome include ozone therapy and yoga massage. Ozone instead of two molecules of oxygen, in its composition, contains three, which positively affects the metabolic processes and increases the capacity for work after excessive loads. Also, ozone contributes to a decrease in blood lactate and Pyruvate. Thanks to ozonotherapy, the young athlete has objective signs of improving aerobic metabolism, faster recovery and increased readiness for physical exertion [32].

Possible subcutaneous administration of the ozone-oxygen mixture ("ozone blisters"), intravenous drip ozonized 0.9% sodium chloride solution ("trehigolic system"), small autohemotherapy with ozone, ozonized solutions of antiseptics, ozonized ointments, vegetable oils and flow gassing in a plastic chamber under conditions of reduced pressure [33]. Thus, correction of the asthenic syndrome is not an easy process, but with the right selection of means of action, one can get a very good result.

CONCLUSION

Asthenic syndrome is a fairly frequent condition in young athletes with Down syndrome. It is based on the oppression of the functions of internal organs and the development of pre-pathological changes in them. Prevention of this condition should be based on the development of young athletes with Down's syndrome of endurance, which is provided by competently built exercises. The correction of the asthenic syndrome should be based on non-drug effects, the central place among which is therapeutic exercise. Good results for asthenic syndrome give a competent application of sports massage. Also, a pronounced positive effect on the body of a young athlete in the asthenic syndrome is provided by therapeutic massage, acupressure and reflex massage. The effectiveness of cry therapy, respiratory exercises, balneotherapy and hydrotherapy for asthenic syndrome has been proven. To correct this condition, some types of physiotherapy are very successfully used. Given that the asthenic syndrome is a pre-pathological process, its development is better not to be tolerated in young athletes with Down's syndrome, and when it occurs, it should be correctly and quickly eliminated.

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