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IMPROVEMENT OF METHODS FOR PREVENTION OF MUSCULOSKETAL PATHOLOGY IN CHILDREN PLAYING CHESS

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ABSTRACT
The article provides data on the properties and mechanism of action of Nordic walking. The positive effect of Nordic walking on the human body is based on mastering the correct technique when walking. While walking with poles, coordinated activity of the skeletal muscles of the trunk is carried out together with the upper and lower extremities, which will help prevent pathology of the musculoskeletal system.
KEY WORDS: *prevention, Nordic walking, children, chess. musculoskeletal system.*

Today, playing sports requires constant improvement of sportsmanship; the volume and number of training sessions are increasing. [1-3]. To achieve high results and gain championship, children are forced to study chess for a long time, most of the time is spent training on electronic devices [5-7]. In turn, being in a monotonous position for a long time during training, the weakest point is the musculoskeletal system (MSA). Under certain conditions, overloads and overstrains appear, which increase the risk of musculoskeletal diseases in athletes [2, 8-10]. However, there are practically no studies devoted to the study of the influence of sports on the musculoskeletal system of those involved in chess, and there is no information about the nature of the impact of the regular training process on the locomotor system. There is also no data on the possibilities of prevention and comprehensive rehabilitation of children with diseases of the spine and musculoskeletal system. All of the above requires searching for new and improving existing methods of prevention.

Nordic walking is a natural form of physical activity in the form of walking with special poles, in which a specific technique is performed [11]. According to many authors, this method is a promising and safe direction, which contributes not only to the restoration of lost function, but also to the prevention of diseases of the musculoskeletal system and the entire body as a whole [12,13].

Research conducted on the topic we are studying has shown that Nordic walking has a number of advantages: there are practically no contraindications; all physical qualities develop (strength, agility, endurance, coordination, etc.); activation and improvement of metabolic processes; involvement of 90% of muscle tissue in the training process; formation and correction of correct posture; increasing stress resistance; reducing anxiety and depression and improving mood [14-17]. The effectiveness of this type of health-improving physical activity has been proven for such problems as poor posture (stooping, scoliosis), osteochodrosis, myofascial syndrome, text neck syndrome, obesity, etc. [11,18,19].

Rhythmic repetitive movements during Nordic walking (Fig. 1.) help relieve tension in the muscles of the neck and shoulder girdle, strengthen the muscular corset of the cervicothoracic spine, while simultaneously reducing the static-dynamic load on the muscles and joints of the lower extremities, which in turn prevents the development of pathology musculoskeletal system. [12,13,20]

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Fig. 1. Nordic walking technique

In addition, given that this type of exercise is aerobic, tidal volume increases and ventilation of the lungs improves, the body is saturated with oxygen, as a result of which vascular spasm is eliminated, headaches stop, sleep is normalized, and the psycho-emotional state improves [13].

Nordic walking can be performed regardless of the time of year and weather conditions, provided all requirements are met. This requires special equipment and equipment - Scandinavian sticks. The length of the stick is adjusted individually depending on the patient's height (Fig. 2). [16]

Fig. 2 Corresponding length of sticks to the patient's height

The Nordic walking program is developed individually depending on age and degree of physical development, and the route, intensity and duration of training and type of exercise are determined. To achieve positive results, it is necessary to observe the basic principle of Nordic walking - involvement in the training process.

Nordic walking, like any other method of physical education, is divided into three periods: introductory, main and final, each of which has a specific effect on the body. [16, 22].

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Warm-up exercises (Fig. 3) have a physiological effect: increasing the dissociation of oxygen from hemoglobin and myoglobin, increasing blood circulation in muscles, ligaments and tendons, increasing the speed of transmission of nerve impulses and the sensitivity of nerve receptors, reducing pulmonary vascular resistance, accelerating metabolism; and specific: increasing the amount of oxygen delivered to the muscles, increasing elasticity, reducing susceptibility to injury, increasing the supply of energy substrates, improving coordination and reaction speed, increasing blood circulation in the lungs, increasing the efficiency of redox reactions in the body [16, 21].

Fig.3. An approximate set of warm-up exercises

In the main phase, the functional reserves of the cardiovascular system, respiratory system, and muscular system increase, which contributes to the overall fitness of the body and prevents the development of the pathological process. At the final stage of training, exercises help reduce venous congestion, reduce catecholamine levels in the blood, reduce delayed muscle pain and reduce recovery time [13,16].

Thus, the positive effect of Nordic walking on the human body is based on mastering the correct technique when walking. While walking with poles, coordinated activity of the skeletal muscles of the trunk is carried out together with the upper and lower extremities, which will help prevent pathology of the musculoskeletal system.

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