

## Correction of Preschool Children with Cerebral Palsy through Special Physical Exercises

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**Annation:** This article describes the partial content of the correction of preschool children with cerebral palsy through special physical exercises and the symptoms of dyskinesia.

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Children's cerebral palsy (CCP) is a general concept of movement disorders caused by changes in various structures of the brain during the perinatal period. Children with cerebral palsy suffer from mono-, hemi-, para-, tetraparalysis and paresis, muscle tone pathologies, hyperkinesia, speech defects, movement coordination disorders, the child's emotional and mental development lags behind.

Mental retardation, psychological changes, epilepsy, and changes in hearing and vision can also develop in DSP (DSP). The disease is diagnosed based on anamnesis and clinical symptoms.

Children with DSP will have to be treated in rehabilitation centers throughout their life, receive medical treatment, and if necessary, undergo surgery. Worldwide, DSP is observed in 1.7-7 out of 1000 children. In premature children, this indicator is 10 times higher. Recent studies have shown that this pathology is observed in 40-50% of premature children.

Children's cerebral palsy is one of the leading problems in pediatrics. The reason for this is the deterioration of the ecology, the development of the field of neonatology, the survival of premature children (even children born 500 g are surviving), which means that the disease is widespread and a topical issue.

### Causes of cerebral palsy in children

Nowadays, it is possible to mention the damage of the brain under the influence of various factors, the incorrect formation or death of nerve cells in certain areas of the brain as the reason for the development of DSP. The impact of these factors in the perinatal period or in short periods (up to 4 weeks) after the birth of the child increases the probability of the development of the disease. The main factor in the development of DSP is hypoxia.

Under the influence of hypoxia, the centers of the brain responsible for movement and coordination are the first to be damaged. As a result, symptoms of DSP appear in children - pathology of muscle tone, paresis and paralysis.

### Classification of DSP in children

5 types of DSP are distinguished in children's neurology, depending on the area of damage to the structure of the brain. The most common among them is spastic diplegia. This situation is 40-80% of all DSPs.

The movement centers of the brain are damaged, resulting in paresis in the legs. If only one hemisphere of the brain is damaged, the movement disorder appears on the opposite side of the body.

In most cases of children's cerebral palsy, there is a hyperkinetic form associated with disorders of subcortical centers. In the clinic of the disease, involuntary movements - hyperkinesia are manifested, and this condition is evident when the child is excited and afraid.

Atonic-astatic children's cerebral palsy is formed as a result of damage to the cerebellum. Symptoms of the disease are manifested in the form of static and coordination, muscle atony.

The most severe manifestation of DSP is bilateral hemiplegia. In this case, bilateral damage of cerebral hemispheres occurs. Due to the rigidity of the muscles, children have difficulty not only walking, standing upright, but also holding their heads independently.

### **Symptoms of cerebral palsy in children**

Cerebral palsy in children comes in many forms and with varying degrees of severity. Clinical symptoms of the disease depend on the affected area and depth of the brain structure. Sometimes the symptoms of cerebral palsy in children appear as soon as the child is born. Often, the disease is detected after a few months when the child's physical development lags behind at the pediatrician's examination.

The main clinical symptom of DSP is the inability of children to perform new movements in the range of motion and learn new skills. A child with cerebral palsy cannot hold his head for a long time, he is not interested in toys, he cannot turn his head, he cannot freely move his arms and legs, he cannot grasp toys. If the child is held by the hand and pulls his feet to the ground, he does not stand completely with the soles of his feet, only the tips of his feet touch the ground.

DSP can present with unilateral or bilateral paresis. If the speaking center is damaged, the child will have symptoms of speech disorder (dysarthria). If the centers controlling swallowing and larynx activity are damaged, swallowing problems (dysphagia) appear.

Muscle tone is increased in all forms of DSP. Movement in the limbs is limited, movement in the joints is lost, as a result, the muscles of the limbs atrophy and they become disproportionate to the body. Children with cerebral palsy have specific body structure deformities (scoliosis, chest deformities). Motor disorders and skeletal deformities cause chronic pain syndrome in children. Pain appears in the neck, shoulders, back.

Children's cerebral palsy in the hyperkinetic form is characterized by sudden symptoms: repeated turning of the head to one side, the appearance of the face, tremors, repetition of the same movement.

In atonic-astatic DSP, there is an inability to maintain balance while walking, muscle weakness, falls, and tremors.

In addition to the above symptoms, children with cerebral palsy may also have other pathologies such as malaise, changes in the gastrointestinal system, breathing problems, and urinary incontinence. About 20-40% of DSPs are accompanied by epilepsies. About 60% of children with DSP have vision problems. Deafness or hearing loss also occurs in some patients. Mentally, children may also have developmental delays, perception and concentration, learning deficits, and behavioral abnormalities.

Despite the fact that DSP is chronic, the disease does not get worse, on the contrary, the symptoms gradually decrease as the child grows and develops. Patients may suffer from secondary conditions such as epilepsy, stroke, brain haemorrhage or more severe osteopathic disorders.

## Diagnosis of DSP

There are no specific criteria for diagnosing cerebral palsy in children. However, as soon as the child is born, some indicators indicate that the child is likely to develop DSP, including: a low score on the Agar scale, anomalies in the range of motion, muscle tone disorders, physical and mental retardation of the child. If such conditions are detected in a child, he should be examined by a pediatric neurologist and a number of tests should be carried out. Checks include:

- Electroencephalography (EEG);
- Electrotomography;
- Electroneurography;
- Transcranial magnetic stimulation

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With the help of these tests, it is possible to distinguish DSP disease from some genetic diseases that appear within 1 year after the child is born (congenital myopathy, Friedreich's ataxia, Louis-Bar syndrome, etc.). Children's ophthalmologist, otolaryngologist, epileptologist, orthopedist, speech therapist and psychiatrist are necessary to diagnose children with cerebral palsy.

## Rehabilitation treatment of children's cerebral palsy

Unfortunately, children's cerebral palsy is currently one of the diseases for which no cure has been found. However, due to timely treatment, children can catch up with their peers mentally and physically.

With the help of rehabilitative procedures, it is possible to reach the level of children's independent management of skeletal deformations, limitation of movement in joints. It is desirable that all procedures are carried out before the child reaches the age of 8.

DSP treatment program is created individually for each child. It takes into account the level and area of damage to the brain, additional symptoms of the child, his vision, hearing, and mental state. Deafness and blindness in children is a condition that causes difficulties in the treatment of children with DSP.

Special specialists will have to conduct training with them. In addition, caution is required when working with children with epileptic foci when performing therapies such as brain stimulation.

LFK and massage are the main rehabilitation procedures in the treatment of children's cerebral palsy. All parents should learn how to massage and perform LFK on their children with DSP.

To achieve effective results, children receive treatments at special DSP centers once a year. Nowadays, in such centers, modern equipment is used in the treatment of DSP children, for example, muscles are fixed and joints are held firmly with the help of pneumosuits. With the help of special clothes, exercises can be carried out to restore coordination in the child's movement. In

cases of dysarthria developed as a result of DSP in children, speech therapists conduct their training with them.

### **Medical and surgical treatment**

In the treatment of cerebral palsy in children, drug therapy is used only to eliminate certain symptoms. For example, anticonvulsants are prescribed in cases of epilepsy, muscle relaxants in case of increased muscle tone, spasmolytic and analgesic drugs are prescribed to relieve pain syndrome. In addition, children are given nootropics, metabolic drugs (ATF, amino acids, glycine), eostigmine, antidepressants, tranquilizers, neuroleptics, drugs that strengthen the walls of blood vessels.

Surgery is performed when muscle contracture and limitations in range of motion are evident. In this case, tenotomy is performed to create a "column" in the paralyzed body part. If the spastic processes are strong and this condition causes asymmetries in the children's body, spinal rhizotomy can be performed on the nerve fiber that innervates this area.

### **Physiotherapy treatment and animal therapy**

In the treatment of DSP, the following physiotherapeutic procedures are carried out:

- Oxygenobarotherapy;
- Electrostimulation;
- Mud treatment;
- Procedures carried out in water;

DSP of modern medicine invented animal therapy training in order to restore children's vital abilities more strongly. In this, children "make friends" with animals, and this stimulates the child's emotional and spiritual development. Among such procedures, the most common is the reconnection of children with horses and dolphins.

### **Social adjustment of DSP children**

Children with cerebral palsy can adapt to social life even if there are deficits in movement. Their parents and relatives play a big role in this. Rehabilitation specialists, psychologists and pedagogues play an important role in the formation of social adaptation in children. Children suffering from this disease improve their adaptability to life in special kindergartens and schools.

### **Consequences and prevention of cerebral palsy in children**

The outcome of children's cerebral palsy directly depends on the degree of severity, form of the disease and timely treatment. In some cases, DSP can also lead to disability. However, as a result of proper treatment, children's deformities, muscle problems and range of motion deficits are partially reduced, and children can lead their lives independently.

DSP prevention consists of preventing various pathologies in women during pregnancy, especially treating diseases that lead to fetal hypoxia.

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