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Short Communication

# Rehabilitation of Children with CNS Disorders

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Currently, the rehabilitation of children with CNS disorders is a comprehensive social performance of people, the object of which is a sick child unadapted to the environment due to defects arising from the disease. Achieving results in rehabilitation is to apply a complex integrative approach to a patient, including medical, psychological and social aspects. The purpose of rehabilitation is to overcome the disease and restore the patient's personal and social status, return him to a normal social environment.

Neuropsychological rehabilitation is a comprehensive medical, psychological and pedagogical effect on the defect:

- Considering its mechanism;
- Providing for an appeal to the patient's personality, to the patient's small social groups (therapeutic group, family, work collective);
- Oriented to recover HMF, as the main task, the solution of which allows us to achieve the ultimate target, psychological recovery of a patient, i.e. rehabilitation of his personal and social status, return to a normal social environment, to professional and social activities.

The basic principles of correctional development work program are the following:

1. The principle of unity of diagnosis and correction.
2. The principle of development normalization.
3. The principle of "bottom to top" correction.
4. The principle of systematic development of mental activity.
5. Activity approach to the correction principle.

Recently, there have been many experimental and clinical trials on the rehabilitation of higher mental functions through cognitive enrichment with an unusual amount of varied sensory stimulation.

Authors in their clinical trial revealed that the convergence of activation of kinesthetic, motor, visual and oculomotor systems in combination with cognitive load significantly improves performance of short-term verbal memory, voluntary attention [9].

The obtained results are determined by the existing concept of the integrative effect of polysensory afferentation (visual, auditory, kinesthetic stimulation) on the activation of cognitive activity (N. A. Bernstein, R. Granit, R. MacLean). According to the materials of national and foreign literature, it was identified as a particular effect of the auditory (sound therapy, music therapy, rhythm therapy), visual (color therapy, video therapy), kinesthetic stimulation (methods of G. Yu. Kudryavtseva, Brain Gym), as well as their joint effect [2-4,6]:

1. Music lessons have a positive effect on most areas of cognitive development of primary school-aged children, accelerating and increasing the standard development of HMF.

2. There is a positive correlation between the child's progress in general and music schools.

3. The spatial and dynamic components of mental functions are mostly affected by music lessons on any musical instrument. No differences between children playing different instruments are seen in tests specific for identifying these components, which allows us to draw conclusion on general influence of music lessons.

4. Classes on the flute and piano have their own specifics in influencing cognitive development. Playing the piano to a greater extent affects the development of verbal functions: verbal memory, verbal thinking, understanding of logical-grammatical constructions. Playing the flute more affects the development of nonverbal functions: successive organization of movements, spatial gnosis and drawing.

5. The combination of neuropsychological correctional lessons with music training enhances the positive effect of lessons, primarily on such functions as the organization of actions in time, motor memory, spatial perception and speech. Thus, it is possible to consider musical lessons as one of the effective methods of neuropsychological deviations correction in the child development.

6. In children with low neurodynamic rates of mental activity, music lessons do not only enhance this deficit as an additional load, but even may slightly compensate it [10].

The body image is the most important support of psychocorrection - both in working with emotional problems and psychosomatic disorders, and for definitive correction of existential problems. According to M Merleau-Ponty (1999), "body experience leads us to admitting the assumptions of meaning".

In modern neuropsychology, the body scheme is considered as a multilevel, complex system, which together with the basic levels ("dark muscle sense" and sensory perception) includes the spatiotemporal perception as a whole, including the psychological "time line", as well as cognitive processes, first of all, the strategic thinking and the cognitive style of the personality, which became actual in the process of contact between the internal (physical) and external spaces (A. V. Semenovich, 2002). Thus, the work with a body scheme - both its use for projective methods of psychognosis and targeted modification - is integral to body-oriented psychocorrection.

Purposeful work with the body scheme, observation of bodily sensations and perception of the various body parts in their interrelation and thereby correction of discrepancies between the psychological and physiological levels of physicality, an imaginary body image to the actual, is used in the method of functional discharge according to M. Fuchs, 1989 (Fuchs M, 1989). Let us clarify that apart from the neurophysiological level, that is, body projection onto the cerebral cortex, the psychological level is also involved in creating the body scheme. At the same time, a set of regular bodily sensations associated with stereotypes of emotional response and reflecting certain psychological problems is superimposed on the neurophysiological body scheme. This projection of the "bodily me", called the "internal body" according to OP Lavrova (2001) and representing a "bundle of nerves", opens up an access to mind control through exposure to the body.

The body scheme is primarily associated in a neurophysiological way with the relative primary or projection areas of the cerebral cortex (the primary sensomotor area is the precentral gyrus of the frontal lobe, the primary somatosensory region is the postcentral gyrus of the parietal lobe), as well as the secondary, association areas that perform integrative functions (inferior parietal gyrus - the area of two-dimensional skin sensitivity and inferior parietal gyrus - the area of the primary cerebellar body scheme). In a contemporary view, the body scheme is created on the basis of a functional union of various brain regions that are responsible both for sensory-discriminatory processes (listed above) and for cognitively evaluating and motivational-emotional processes. A similar structure, which is described by the concept of "neuromatrix" (Melzack R, 2001) and combines the body itself, emotions and mind, from a physiological point of view, is the application object of bodily psychocorrection [11].

In the structure of the clinical symptomatology in patients with CNS disorders, psychovegetative disorders, such as vegetovascular dystonia, neurocirculatory asthenia, panic attacks, are often prevail. They are formed among the first in early childhood. The children with functional development arrest are often diagnosed with asthenic syndrome which is manifested by a performance decrement, deterioration in the tolerance of physical and psycho-emotional stress, increased tiredness and cognitive impairments of the neurodynamic type. This is revealed at preschool and school, teenage and young age accompanying patients throughout their lives. Along with the mental disorders peculiar for these patients such as neurotic disorders, depression, hypochondria, phobic anxiety disorders, anorexia nervosa, these patients have significant problems in physical and social adaptation. Therefore, the need for competent psychological assistance and correction for a sick child and his entire family is growing (it is important to obtain knowledge about the state of the emotional and personal characteristics of the parents of such children and study peculiarities of their relation with the child).

Research in these fields is relevant for clinical psychology and medicine (primarily, for neurology, psychiatry and genetics).

The complex psychological follow-up for a family raising a child with CNS disorders should be carried out by a group of specialists (doctors, psychologists, speech therapists, speech pathologists, tutors, social teachers, subject teachers, additional education teachers) with the integrating and coordinating role of a psychologist (family curator), aimed at increasing parental activity and improving the child's quality of life.

The program of social, medical, psychological and pedagogical rehabilitation includes:

- Systematic and extensive (starting with the early recognition of such families and ending with the postparental period);
- Given the specific problems of a child at each stage of the life cycle;
- Coverage of all family members, taking into account their age and personal characteristics;
- The need for interdisciplinary interaction of specialists involved in the fosterage, treatment and socialization of a child.

## Bibliography

1. Ganicheva IV. "Body-oriented approaches to psychocorrective and developmental work with children (5 - 7 years old)". Knigolyub (2004): 144.
2. Goidenko VS., *et al*. "Visual color-stimulation in reflexology, neurology, therapy and ophthalmology". M: RMA (2000): 168.
3. Grigorieva VN., *et al*. "Cognitive neurorehabilitation of patients with focal brain lesions". Study guide. M.: UMK "Psikhologiya"; MPSI (2006): 256.
4. Ivanova GE., *et al*. "Some forms of cognitive rehabilitation in the acute cerebral stroke". Materials of the I International Congress "Neurorehabilitation" (2009): 47.
5. Klezovich OV. "Musical games and exercises for development and correction of speech". Mn.: Aversev (2005): 152.
6. Kozhokina LN. "Program-Use of didactic games and game techniques for the correction of perceptual defects in space and orientation in children with ICP". Gubkin, 46.
7. Kudryavtseva GY. "A set of exercises to improve attention, memory and balance in chronic cerebral ischemia". Thesis Candidate of Med. Sc., Tomsk (2005): 24.

8. Pavlov AE. "Correction development impact of music lessons on the neurocognitive development of primary school children". Thesis Candidate of Ps. Sc., Moscow (2008): 24.

9. Sandomirsky ME. "Psychosomatics and body psychotherapy: Practice guideline". M: Independent firm "Klass" (2005): 592.

10. Sirotyuk AL. "Neuropsychological and psychophysiological support of training". M (2003): 282.

11. Troitskaia LA and Davidenko NV. "Practicum on correctional and educational training: theory and practice: Study guide for students of university students". M (2011): 104.

12. Tsvetkova LS. "Neuropsychological rehabilitation of patients. Speech and intellectual activity". Study guide: MPSI, Modek (2004): 424.

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