



Choreotherapy in the complex correction of motor stereotype in persons with down syndrome under inclusion conditions

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Abstract

Objective of the study to evaluate the effectiveness of complex correction of motor stereotype in persons with Down syndrome (DM) in the process of practicing choreotherapy in inclusion conditions.

Methodology and organization of the study. Within the framework of the Inclusive Sports Saturday project (2021-2022), a sequential experiment was conducted to study the influence of choreotherapy classes based on the use of complex movements combined into one semantic sequential, rhythmic, motor act in order to correct postural posture control in people with Down syndrome.

The results of the study and conclusions. Classes with children with diabetes according to the method of choreotherapy allow you to actively engage and develop such qualities as mechanical memory, imitative abilities, musical memory, sense of rhythm, actively affects the vestibular system, improves muscle tone and coordination of movements, which generally has a positive effect on the formation of correct posture.

Keywords: *Down syndrome, choreotherapy, motor stereotype, inclusive sports activities.*

Introduction: The peculiarity of the motor stereotype of children with Down syndrome (DM) is primarily due to: the syndrome of diffuse muscular hypotension in combination with coordination disorders of varying severity, motor awkwardness, lack of formation of subtle, differentiated motor acts.

In 30% of children with diabetes, pyramidal symptoms occur, while its severity depends on the degree of structural changes in the brain, cerebrospinal fluid dynamics, a decrease in the density of nervous tissue, a decrease in the volume of cerebellar structures, immaturity and pathological activity of cortical neurons, a violation of the synthesis and functions of neurotransmitters [5].

In addition to motor disorders, children with DM have cognitive deficits in the form of disorders of mental and speech development and difficult adaptation to society [2]. Especially important is the fact of damage to the hippocampus, a critical structure of the brain responsible for spatial memory and consolidation of short-term memory into long-term memory. This struc-

ture is responsible not only for the ability to learn and memory, but also has extensive connections with many brain structures.

Therefore, the development of new programs of adaptive physical culture of correctional and compensatory orientation is undoubtedly an important step in helping special children learn to live a full life, develop cognitive mental processes, emotional and volitional regulation [4]. The strengths of people with DM include a good mechanical memory, imitative abilities, musical memory, curiosity, which is why nami chose dance as the main means of motor correction.

Taking into account the above-mentioned features of the motor stereotype of people with DM, the methodological support of dance-movement therapy (TDT) has specific differences, both in the general physical training of this contingent, and the features of psychomotor expression as the leading method of intervention that allows consolidating short-term memory into long-term memory [6].



Despite the fact that dance-movement therapy (TDT) techniques are used in the treatment of children and adults with various disorders, there is a limited number of studies devoted to the use of this technology for correctional purposes in children with DM [1,3].

The purpose of the study: to evaluate the effectiveness of complex correction of motor stereotype in people with Down syndrome during choreotherapy in inclusion conditions.

Methodology and organization of the study: the study was conducted on the basis of the Volga GUFK-SiT within the framework of the project "Inclusive Sports Saturday" [7], organized by the Department of AFKiBJ and the Tatarstan regional branch of the Special Olympics of Russia (Kazan). A technique of choreotherapy (the use of dance, plastics and rhythmic for the correction and prevention of motor disorders) was developed, aimed at the complex correction of the motor stereotype in people with Down syndrome. The methodology is based on the principle of sequential execution of complex coordinated dance movements.

The developed technique was tested by a sequential experiment in which persons with diabetes aged 11-16 years (n-8, 5 girls and 3 boys) took part. Classes lasting 60 minutes were held once a week. The total course was 26 classes.

The methodological features of choreotherapy classes are presented below.

In the preparatory part (10 minutes) of the lesson,

asymmetric cheerleading exercises are performed, which contribute to the activation of the nervous, respiratory and cardiovascular systems. The exercises are performed at a slow, medium pace.

The main part (40 minutes) consists of three logically related sets of physical and dance exercises. Corrective and developmental exercises aimed at normalizing the tone of the deep back muscles of the craniosacral system are based on myofascial principles and the specificity of physical exercises with elements of respiratory gymnastics. The goal is to correct the asymmetric muscle tone to maintain the correct biomechanics of the vertical position of the body [8].

To strengthen the muscles of the cervical-thoracic and thoracic spine (a specific effect on the correction of instability of the segments of the cervical spine), static exercises are performed lying on your back with your head on a yoga cube. The technique of the exercise is controlled by the tutor.

The second part of the lesson is aimed at consolidating the feeling of the spatial position of the body. The task is to improve the coordination of body movements in space to normalize balance, posture, and develop static endurance of the trunk muscles. Three standard ballet positions were used to solve this problem.

1. The first position: the legs are on the same line, the heels are brought together, the socks are spread apart. For a stable position in this position, the tutor controls the position of the legs;

Indicators of postural control of persons with Down syndrome in the experimental group during the pedagogical experiment, ($X \pm \sigma$)

Indicator F.I.O	Expert evaluation		Test «Swallow»		Test «Corner»		Test Romberg		test «Walking the line»	
	1	2	1	2	1	2	1	2	1	2
standard	7 points		20 sec		15 sec		15 sec		17 sec	
1-the beginning / 2 - end of the experiment	1	2	1	2	1	2	1	2	1	2
1. Child № 1	4	7	13,4	15,3	6	10,3	7,5	10,2	21	18,9
2. Child № 2	3	6	12,1	16,5	11,3	12	9	13	24,4	20
3. Child № 3	3	6	9,5	14	9,5	14,6	11,2	15,2	22,7	17,5
4. Child № 4	3	5	11,4	12,1	10,7	11,9	7,9	11,4	23,1	18,1
5. Child № 5	4	8	13,9	17,4	11	10,5	8,9	13,8	26,3	20,2
6. Child № 6	3	6	10,9	14,6	9,8	13,4	8,8	12,9	24	19,7
7. Child № 7	3	6	8,5	13,2	7,5	13,8	10,1	13,4	20,3	16,8
8. Child № 8	5	8	11,3	13,9	12,7	14,3	7,1	11	24,5	19,2
X cp	3,5	6,5	11,38	14,63	9,81	12,6	8,81	12,6	23,29	18,8
δ	0,75	1,06	1,8	1,73	2,16	1,67	1,35	1,64	1,95	1,22
m	0,26	0,37	0,64	0,61	0,76	0,59	0,48	0,58	0,69	0,43

Note: δ - is the mean square deviation, m - is the error of the arithmetic mean.



2. The second position is derived from the first. One of the legs is moved to the side, so the tutor controls that there is a distance between the heels equal to the foot. Socks are still looking to the sides;

3. The third position is universal in choreography. The heel of the right foot is placed in the middle of the left foot, the socks are spread apart. The movement of the hands is also strictly regulated and is under the constant supervision of the tutor. The shoulders are relaxed, the arms along the torso are lowered down.

The main part of the lesson ends with a dance practice with an instructor and volunteers who carry out visual control over maintaining posture. Elements of such dances as: cha-cha-cha, salsa, waltz are used.

The final part of the lesson (10 minutes) consists of breathing exercises, stretching exercises, relaxation and relaxation, aimed at gradually reducing the load and bringing the students into a relatively calm state. It is performed at a slow pace.

Organizational and pedagogical conditions were determined for the effective implementation of the developed methodology:

- preliminary (before the start of the course) determination of exercise tolerance (Harvard step test with a simplified formula of the IGST index = $t \times 100 / f \times 5.5$ where t is the climbing time in seconds, f is the heart rate). A feature of the testing is the game form of the test with elements of cheerleading and constant motivation of the subjects.

- the beginning and end of classes are clearly regulated, obvious to the child and forms a kind of frame inside which the child feels comfortable and confident.

- inclusion of parents and assistance of tutors during classes.

- the use of special equipment (gym mat, cheerleading pom-poms, yoga cubes, choreographic machine, mirrors).

The impact of the applied means was tested in a pedagogical experiment, the results of which are presented in Table 1.

As can be seen from the data in the table, each student according to the experimental method had a sufficient improvement in the indicators of postural control.

Conclusions:

1. For personal lessons with children with diabetes, the cryotherapy technique allows you to actively engage and develop such qualities as mechanical memory, imitative abilities, musical memory, sense of rhythm.

2. Choreotherapy exercises actively affect the vestibular system, improve muscle tone and coordination of movements.

3. The proposed method of choreotherapy has a preventive effect and contributes to the correct formation of posture, the development of coordination abilities.

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