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THE INFLUENCE OF THE DANCE FOR PEOPLE WITH DOWN SYNDROME

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Abstract: *Dance is an environment accessible to all, without aptitude barriers, a way of expression and personal development of every human being. Down syndrome is the result of one of 3 chromosomal abnormalities, a generic condition associated with intellectual disability, balance, and the coordination of impaired moments. Thus, the aim of the research was to identify the role of some dance programs on the motor ability of adults with Down syndrome. For 6 months, 12 subjects (5 female and 7 male) members of ALDO-CET Băileşti Association took part in a project that involved the participation of biweekly meetings for dance therapy. Subjects were tested before and after implementation of the working programs, the tests being related especially to coordinative abilities. SPSS version 21 performed statistical analysis of data. The results showed significant changes (p<0.05)* lessons Lelievre, Tuchowski, Rolland, *between the averages difference of two tests, the dance programs had positive on balance, posture, and motor control.*

Key words: *Down syndrome, dance, coordination, balance.*

1. Introduction

Dancing is one of the most accessible forms of exercise for people of all ages. This activity combines movement with musical accompaniment, which leads to an increase of the attractiveness for this kind of physical activity, thereby interfering a mental relaxation.

Thus, the dance turns into a therapy through movement and music from whom benefit many people. A positive effect on was reported on cognitive, physical and phychosocial health after practicing dance (2015) and pacients with breast cancer, Parkinsons's disease and depression seemed beneficial aspects [7].

Many people with intellectual disabilities have a sedentary lifestyle [10].

The positive influence of physical activity performed frequently on people with Down syndrome has been identified in some researches [1], [12].

One of the activities that offers multiple possibilities of execution and that can be adjusted depending on subjects' potential, is the dance.

Dancing can be attractive for people with Down syndrome, many children disrespecting specialists' recommendations in terms of daily physical activity [2]. In

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another research in was proved that specific teaching approaches can significantly effect the development of people with DS in creative aspects of the curriculum as music, movement and dance [11].

The research aim was to establish an improvement strategy of the motor ability through dance of people with Down syndrome and to identify possible positive influences.

2. Method

For 8 months, 12 individuals with down syndrome (5 girls and 7 boys) participated 3 times a week in sessions of dance. There were applied techniques from contemporary dance and music improvisation exercises on specific topics by the teacher. Subjects were tested before and after implementing the work programs, following the evolution of the subjects in this period.

The applied tests were:

-The test *"Stand up and go"*. Seated comfortably on a chair with a backrest, placed 3 meters in front of a wall, the subject is invited to execute the test, which consists on the following phases:

Phase	Quotation
He gets up from the chair;	
Maintains orthostatism for few seconds;	
moves to the wall (3m);	
turns 360º, without touching the wall;	
returns in front of the chair;	
turns 360º;	
sits on the chair.	

2.1. The test model for *"Stand up and go"*

Interpretation: The results are expressed for each phase by reference to a scale from 1 to 5. (Does not exist instability, Mild instability, slow performance (easy deficit), Hesitations, compensatory movements of the body and limbs (average deficit), Stumbles in execution (important deficit), severe imbalance, permanent risk of falling (severe deficit).

A higher score or equal to 3 for each phase highlights a significant risk of failure, which requires vigilance from supervisors.

2.2. *Tinetti walk* test: is an analysis of some components of walk, which can be done at the patient's usual speed or/and high speed. At this test, the grades of judgment may be from 0 to 1, as follows: 0 - do not realize, 1 - realize.

The test includes:

Test's phases	Quotation
1. The growth of body balance;	
2. The ability of increasing walk's speed;	
3. Walking route deviation.	

The model for Tinetti Test

The scala gait assessment is more complex than Tinetti walk test, because this includes a series of automatic movements of the upper and lower limb joints.

The appreciation's grades of this scale are from 0 to 3, 0 representing normality, and 3 the most serious aspect.

2.3. The *"Climbing and going down the stairs"* test - consists of: the subject is asked to climb a number of steps, until tiredness or inability of climbing appears.

At that time, the test is stopped and is recorded the number of steps that he climbed. For going down the stairs, it will be done the same. The test may be performed with or without help from the evaluator, if it's necessary.

2.4. *Romberg test* - investigates the balance in the standing position, legs close, upper limbs besides trunk or oriented in the previous plan (elbows extended). It is executed with the eyes opened and closed (the touch control is reduced only if the subject can maintain the test position with eye8585s opened). It is appreciated for 60 second the loss or the attempts of keeping the equilibrium (recoveries) through excessive oscillations or stepping.

In vestibular lesions is can be observed the lateral deviation in affected part.

Normally, with eyes opened or closed, the subject has no deviations or falls.

The participating subjects in the research were those whose parents/guardians have agreed to be part of the target group of the research, having a written document in this regard.

The statistical analysis of recorded data was performed through the SPSS Version 21 program, calculating the arithmetic mean and standard deviation. The paired test was conducted to assess differences in means and 95% confidence intervals between first and final test.

3. Results

The results achieved by the final evaluation sheets were compared with data recorded at the first test

Table 1

Test results stand up and go i group - pupils with langdon down syndrome

The statistical parameters	Stand up and go	
	Initial	**Final**
Arithmetic mean	1.786	1.167
Standard deviation	0.813	0.490
T	2.96	
p	0.013	

At the initial test it is obtained an average of 1.78 (SD 0.81 points) regarding test Stand up and go and 1.16 (SD 0.49 points) at the final test.

5 subjects with Down syndrome showed difficulties in the test's execution at the first test, at the final test being two pupils with balance deficit and spatial-temporal orientation.

Table 2

Results for Tinetti Test group

The statistical parameters	*Tinetti*	
	Initial	**Final**
Arithmetic mean	1.79	0.96
Standard deviation	0.86	0.61
t	2.68	
p	0.001	

At the subjects with Down Syndrome, you can meet several components of the walk wrong realized.

Thus, at the initial tests is obtained an average of 1.79 (SD 0.86 points) in terms of analyzing some components of walk and 0.96 (SD 0.61 points) at the final test.

Table 3

Results of Climbing and Going Down the Stairs

The statistical parameters	**CLIMBED STEPS**		**LOWER STEPS**	
	Initial	**Final**	**Initial**	**final**
Arithmetic mean	28.17	34.83	27.33	32.63
Standard deviation	10.15	9.60	9.97	9.88
t	-6.41		-6.59	
p	0.001		0.001	

At the initial test it is obtained an average of 28.17 (SD 10.15) in terms of number of climbed steps, these increasing to 34.83 (SD 9.60) at the final test. The subjects' progress with down syndrome is 42%, all making improvements at this parameter.

At the lowering test it is obtained an average of 27.33 (SD 9.97) in terms of the number of climbed steps, these increasing to 32.63 (SD 9.88) at the final test. The recorded results at the climbing of steps is relatively similar to that of their descent, however downhill the tempo was slower.

Results of the Romberg Test Table 4

The statistical parameters	**Number of the present deviations - eyes opened**		**Number of the present deviations - eyes closed**	
	Initial	**Final**	**Initial**	**Final**
Arithmetic mean	0.62	0.00	1.83	0.67
Standard deviation	1.03	0.00	0.88	0.82
t	2.34		5.63	
p	0.039		0.001	

At the test with eyes opened, 2 subjects with Down Syndrome record 2 each imbalances at the initial test (X = 0.62), at the intermediate test there is recorded one imbalance and at the final neither.

At the balance test with eyes closed, it is obtained at the initial test is obtained an average of 1.83 (SD 0.88) existing one subject with 4 deviations, 3 with 3 deviations and 4 with one deviation.

At the final test the average was 0.67 (SD 0.82), with one subject with two imbalances and 2 with one.

4. Disscusion

The Romberg which is targeting the proprioceptive ability of an individual, has indentified vestibular problems at the most the subjects with Down Syndrome, the equilibrium problems being known at this syndrome.

There are authors who argue that these problems lead to the cognitive and concentration [5].

The results of research have showed that the dance influences positively the coordinative capacity of persons with DS.

And other authors established that the appropriate intervention might improve the physical condition of people with Down syndrome [9].

Our approach became more important as it was shown that the general fitness level for adults with DS is even lower than other people with Intellectual Disability [3, 4] and so, a permanent intervention is required permanently on the driving capacity of people with DS.

Likewise, it is scientifically proven that the lack of physical exercise from the lifestyle of people with DS may increase the risk of health problems such as obesity, diabetes or Alzheimer's disease [6], [13].

Thus, our study certifies that the positive influence which specific means of dance have on driving ability and functional of adults with Down syndrome.

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