ISSN 2454-8596
www.MyVedant.com

An International Multidisciplinary Research E-Journal

Effects Of Adapted Aerobic Dance On Selected Psychomotor Variables Among Intellectually Challenged Children

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ISSN 2454-8596
www.MyVedant.com

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ABSTRACT

The aim of this study was to suggest suitable adaptation for aerobic dance for the benefit of intellectually challenged children and to find out the effect of the same on selected psychomotor variables, such as movement time and reaction time. For this purpose, the investigator selected 30 intellectually challenged children and divided into two groups, experimental (n=15) and control (n=15). The experimental group was asked to perform with no disabled peers along with music and video display of the aerobic dance. Pre and post-test scores on movement time and reaction time was collected and subjected to statistical analysis using ANCOVA. The results proved that there was a significant improvement in movement time ($P<0.05$) and reaction time ($P<0.05$) due to adapted aerobic dance. It was concluded that the adaptation of aerobic dance with nondisabled exercise partners along with music and video display make the intellectually challenged children involve in the experimental treatment which can be followed future researchers apart from the fact that it contributes to the beneficial improvement of selected psychomotor variables of the intellectually challenged compared to controls.

Key Words: Intellectually challenged; psychomotor variables, movement time, reaction time.

INTRODUCTION

Physical fitness is of great importance for all human beings irrespective of age. Bucher (1985) explains physical fitness is the ability of an individual to live a full of a balanced life. It involves physical, mental, emotional, social, and spiritual factors and the capacity for their whole form of expression. Human Psychomotor skills are organized patterns of muscular activities guided by changing signals from the environment. In research concerning psychomotor skills, particular attention is given to the learning to the co-ordinated activity of the arms, hands, fingers, and feet. The role of verbal processes is not emphasized. (Oxendline, J.B.,1983)

The term intellectually challenged is increasingly being used as a synonym for people with significantly below-average IQ. These terms are sometimes used as a means of separating general intellectual limitations from specific, limited deficits as well as indicating that it is not an emotional or psychological disability. Intellectual disability is also used to describe the outcome of traumatic brain injury or lead poisoning or dementing conditions such as Alzheimer's disease. It is not specific to congenital conditions like Down syndrome. Mental retardation is a term for a pattern of persistently slow learning of basic motor and language skills ("milestones") during childhood, and a significantly below-normal global intellectual capacity as an adult. One common criterion for the diagnosis of mental retardation is a tested intelligence quotient (IQ) of 70 or below and deficits in adaptive functioning. (Badano, Jose L. et.al. 2006) People with mental retardation may be described as having developmental disabilities, global developmental delay, or learning difficulties.

Adapting a physical activity may refer either to technical adaptations, such as using assistive aids and adapting the game equipment, structural, for instance adopting rules and instructions of the game or educational, meaning adaptation of teaching methods or the way of practicing and teaching. Good adapted physical education should be associated with psychomotor, cognitive and affective domains of learning. The aims of adapted physical activity should be set down together with the instructor and the participants in order to commit oneself more to the process. (Sherrill, 2004). Adapted physical activities strive to bring better fitness and healthier lifestyles through involving in regular fitness programs/exercises to all involved. People participating in these often gain and enjoy family support as well as physical fitness and motor skills. Such adapted programs will inspire people with intellectual disabilities to expand their horizons and become physically fit and grow mentally, socially and spiritually. (Sherrill, 2004)

Research efforts to increase physical activity by individuals with ID have produced relatively consistent and positive results. While many interventions have been short-term and some have methodological shortcomings (e.g., small sample size), it is beneficial to review the findings of previous work to guide future research and practice. Tomporowski and Jameson (1985) paired adults with ID and nondisabled exercise partners over an 18-week

walk/jog program. Partners assisted with pacing and provided ongoing verbal encouragement to motivate the participants with ID while they were engaging inactivity. A similar approach was taken by Lavay and McKenzie (1991) who reported that five men with ID actively participated in a supervised walk/jog program three days per week for 12 weeks. Aerobic fitness levels increased significantly as a result of participation. Most importantly, authors noted that once the training program was discontinued, the men continued to walk/jog three days per week for a year. These studies provide evidence that, with some supervision and encouragement, adults with ID will actively engage in short-term walking programs. Research work conducted by Owlia, French, Ben-Ezra, and Silliman (1995) used music and music videos to increase the time on task of five adolescents with profound ID The findings of these studies further indicate that individuals with ID will participate in physical activity and that level of engagement increases with positive extrinsic reinforcement. The effectiveness of a 12-week (three days/week) low-impact aerobic dance program for improving cardiovascular endurance in adults with ID was examined. by Cluphf D, O'Connor J, Vanin S. (2001) and found aerobic dance is motivating to individuals with ID. And aerobic fitness improved as a result of engaging in aerobic dance, attendance was high, and no individuals dropped out. Inchulkar Shilpa and Venugopal Reeta (2013) determined the effect of 10-weeks exercise program on Psychomotor ability (reaction ability and speed of movement time) of mentally challenged (MC) children and found a significant difference in pre and post-test measurements in all studied variables in the experimental group understudy ($p<0.05$)

The theoretical foundations based on previous researches have found that a right program exercise and athletic programs for mentally disabled children can be a therapeutic tool resulting in better weight management, development of physical coordination, maintenance of cardiopulmonary fitness, and improved self-esteem. Further, physical exercise may offer promise as an effective, benign, and practical adjunct to other treatment and management techniques. The discussion on the levels of psychomotor fitness of mentally challenged children proved that their psychomotor variables movement time and reaction time are to be studied further in relation to the adapted physical activities imparted to these children in the form of aerobic dance. In this research the investigator was interested in

comparing the influence of adapted aerobic dance on the psychomotor variables of mentally challenged children.

METHODOLOGY

Pre-test post-test the design was used in this research. 30 intellectually challenged children (N = 30) were randomly selected for this study. The subjects who were selected for the study were leading a purely sedentary life style. From the medical reports and other details of the subjects that the school posses, the researcher was able to mark out the educable intellectual challenged children who acted as the subjects for the study. The selected subjects were divided into two groups, namely, an experimental group I to undergo adapted aerobic dance (AAD), and the remaining group was considered as control group, which did not undergo any special treatment. Pre-tests were conducted on all the 30 children before experimental treatments on selected psychomotor variables, movement time and reaction time. The experimental group underwent adapted aerobic dance for 12 weeks. Each subject was paired with nondisabled exercise partners along with music and video demonstration so that the subjects participated in the aerobic dance exercises Immediately after completion of the experimental period, post-test scores were collected from all the 30 subjects, which formed the final scores on selected variables. The differences between the initial and final scores of the selected dependent variables were considered as the effect of experimental treatments. To test the statistical significance, the obtained initial and final scores were subjected to statistical treatment using ANCOVA.

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RESULTS

Tab 1: Effects Of Adapted Aerobic Dance On Selected Psychomotor Variable, Movement Time Among Intellectually Challenged Children

(Scores in Seconds)

	Adapted Aerobic Training	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	14.29	13.27	Between	7.91	1	7.91	1.26
			Within	175.74	28	6.28	
Post Test Mean	13.44	13.30	Between	0.15	1	0.15	0.03
			Within	134.43	28	4.80	
Adjusted Post Test Mean	13.8	13.4	Between	3.75	2	1.87	5.37*
			Within	9.42	27	0.35	
Mean Diff	0.85	0.03					

Required table F (df 1,28): 4.20 * Significant at 0.05 level

The results presented in Table 1 proved that adapted aerobic dance training with pre-test movement time mean score of 14.29 seconds was reduced to 13.44 seconds after 12 weeks of experimental treatment and the adjusted mean considering both pre and post-test

scores were 13.8 seconds. The control group's pre-test mean was 13.27, post-test mean 13.30 and the adjusted post-test mean was 13.4. The net effect on adjusted means of the experimental and control group was determined by calculation of F value and the obtained F value of 5.37 was greater than the required table F value of 4.20 and was found to be significantly improved movement time of intellectually challenged children at 0.05 level.

Tab 2: Effects Of Adapted Aerobic Dance On Selected Psychomotor Variable, Reaction Time Among Intellectually

Challenged Children

(Scores in Seconds)

	Adapted Aerobic Training	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained F
Pre Test Mean	0.4959	0.5047	Between	0.0006	1	0.0006	0.60
			Within	0.0268	28	0.0010	
Post Test Mean	0.4457	0.5035	Between	0.0251	1	0.0251	25.23*
			Within	0.0279	28	0.0010	
Adjusted Post Test Mean	0.4281	0.4850	Between	0.0238	2	0.0119	11.65*
			Within	0.0276	27	0.0010	
Mean Diff	0.0503	0.0011					

Required table F (df 1,28): 4.20 * Significant at 0.05 level

The results presented in Table 2 proved that adapted aerobic dance training with pre-test reaction time mean score of 0.4959 seconds was reduced to 0.4457 seconds after 12 weeks experimental treatment and the adjusted mean considering both pre and post-test scores were 0.4281 seconds. The control group's pre-test mean was 0.8047, post-test mean 0.5035 and adjusted post-test mean was 0.4850. The net effect on adjusted means of the experimental and control group was determined by calculation of F value and the obtained F value of 11.65 was greater than the required table F value of 4.20 and was found to be significantly improved reaction time of intellectually challenged children at 0.05 level.

DISCUSSIONS

Intellectually challenged children with varying degrees of functioning share common behavioral and psychomotor characteristics. A specially designed instructional approach with a positive social attitude is necessary when dealing with this population. Researches reveal that many of these individuals have developmental delays in the acquisition of basic motor skills. Further comparing as a group to their non-handicapped peers, intellectually challenged adolescents to display low physical fitness and have perceptual-motor difficulties, which affect their learning. In addition, some possess physical characteristics, which pose constraints in learning and performing motor skills. A social attitude of equality and acceptance plays a major role in their successful inclusion in society. (Aharoni H (2005). Keeping this in mind the investigator has adapted aerobic dance for intellectually challenged children to do the experimental treatment with nondisabled children along with music and video display to gain more attention and concentration. The experimental treatment was well followed by the subjects and the results presented in Tables 1 and 2 proved that as a result of adapted aerobic dance for 12 weeks, the psychomotor variables, movement time, and reaction time were improved significantly compared to the control group. The improvement was found to be significant at the 0.05 level.

The findings of this study were in agreement with the findings of Owlia, French, Ben-Ezra, and Silliman (1995) who used music and music videos to increase the time on task of five adolescents with profound intellectually disabled (ID). Cluphf D, O'Connor J, Vanin S.

(2001) also found aerobic dance improved aerobic fitness of adults with ID. Inchulkar Shilpa and Venugopal Reeta (2013) determined the effect of 10-weeks exercise program on psychomotor ability (reaction ability and speed of movement, time) of mentally challenged (MC) children and found significant the difference in pre and post-test measurements in all studied variables in the experimental group under study ($p<0.05$).

CONCLUSION

The adaptation of aerobic dance with nondisabled exercise partners along with music and video display make the intellectually challenged children involve in the experimental treatment which can be followed future researchers. Further, it was concluded that the adapted aerobic dance beneficially altered intellectually challenged children compared to controls.

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