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Rhythmic Exercises on Specific Physical Fitness Parameters among Children with Disabilities

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ABSTRACT

The purpose of this study was to investigate the rhythmic exercises on specific physical fitness parameters among children with disabilities. The children aged between 10 to 14 female children alone were selected for the study, especially the children with mild intellectual disability. Total number of children were thirty and they all were school going female children in the Coimbatore district, Tamilnadu, India. these children were selected particularly with the help of medial report given my government and with the help of class teachers also parents as the child who are able to perform the Rhythmic Exercise and interested to be in this study. future thirty children were equally divided into Experimental groups (n=15) and Control group (n=15), after the group division the instruction was given to the children and started the intervention of 12 weeks rhythmic exercise where one group will perform rhythmic exercise (n=15) the experimental group and the other group will act as a passive group (n=15) where they may not do any kind of exercise instead follow the regular activity. As the rhythmic exercises was given for 12 weeks, 4 days per week, 45min of duration session was given along rest 15min of warm up and cool down was exercise was given totally 60min of duration was occupied. Rhythmic exercise was planned according to the children ability as slow, steady and retainable.

Since in the selected Physical Fitness Parameters, which is Coordination and Reaction Time was analysis and it showed that the rhythmic exercises program significantly improved both Coordination and Reaction Time in the experimental group than the control group. These findings indicate that rhythmic exercises can effectively enhance physical fitness parameters in children with disabilities with the mild category.

Keywords: *Physical Fitness Parameter, Rhythmic Exercise, Children with Disabilities, Coordination and Reaction Time.*

1. INTRODUCTION

In modern world of the era (Vinolia, B & Annadurai, R. 2021). The importance of promoting the health and well-being of

all children, including those children with disabilities play as major role. These children often encounter significant barriers that can limit their physical development and participation in physical activities. (MacEachern, S. 2022). Consequently, there is a growing interest in identifying effective interventions that can enhance their physical fitness, also motor skills, and overall quality of life (Collins, K., & Staples, K., 2017). One promising approach is the incorporation of rhythmic activities, which involve movements performed to a consistent beat or rhythm, such as any movement with the rhythm, count and music like Aerobics, Zumba, Exercise in rhythm or count (calisthenic, marching and clapping exercise etc).

Rhythmic activities are particularly appealing for children with MID due to their structured nature and inherent enjoyment (Kranowitz, C. S., 2006). These activities provide a supportive environment that can facilitate improvements in coordination and reaction time (Vazou, S., Klesel, B., Lakes, K. D., & Smiley, A., 2020). Studies have shown that rhythmic activities can have a substantial impact on various components of physical fitness, including strength, flexibility, and endurance, in children with intellectual disabilities (Horvat, Eichstaedt, Kalakian, & Croce, 2003).

2 METHODOLOGY AND METHODS

In order to achieve this study Thirty Children (N=30) with Mild Intellectual Disability (with IQ level = 50 -70) were involved, with the age range between 10 to 14 years of female children were participants who were assessed as capable of performing rhythmic exercises based on their teacher's evaluation, medical records, and moderate category of IQ level. Before the Intervention period of twelve weeks , parent concern form was taken and with the help of class teacher, medical record and capability of children to perform was taken to concern and two group were divided equally as Experimental group I (n=15) were the children participated in the Rhythmic Exercise for 12 week, Monday-Tuesday-Wednesday-Thursday for each week and in other hand Control group II acted as the passive group where they may not participate in Rhythmic Exercise instead follow the regular daily activity.

This study mainly focused on the two physical fitness parameters which are: Reaction Time and Co-ordination. Rhythmic exercise was given for 12 weeks, 4days per week, with 60min of duration along with break timing, warm up and warm down, Pre-test and Post-test measurements were taken before and after the 12-week intervention using the standardized tool - Nelson Hand Reaction time test used to test Reaction Time and Ball-Toss Test used to measure Co-ordination of the selected thirty children with disability. Finally, the data were analysed using the 't' ratio with the help of SPSS Software. A significance level of 0.05 was chosen for the study.

Table 1: Tools and Techniques

Parameters	**Assessment Tool**	**Measurement Standards**
Reaction Time (RT)	Nelson Hand Reaction time test	cm/sec
Co-ordination (C)	Ball-Toss Test	count/m

2. INTERVENTION PROGRAM

The 12-week rhythmic exercise training program Was systematically structured and applied based on the key principles of sports training, including consistency, gradual progression, throughout the training program period. This well-structured program was conducted four days a week—on Mondays, Tuesdays, Wednesdays, and Thursdays—during school hours. Supervised exercise training played a crucial role in enhancing physical fitness components in children with disabilities.

To achieve better outcomes, an individualised rhythmic exercise program designed especially to fulfil the requirements of the children with disability of mild category was implemented in order to improve results. The participants' weekly rhythmic exercise training sessions were designed to be both interesting and productive. Because they had modest intellectual limitations, it was sometimes difficult for them to start tasks and stay focused for long periods of time, which made teaching rhythmic exercise.

Four physical educators trained in rhythmic exercise for children with MID helped the research scholar during the 12-week training program of intervention. The instruction was delivered in a deliberate, incremental manner, with a slower speed and repeatable to help the children to do the rhythmic exercise so they can do the exercise and retain the exercise.

3. STATISTICAL PROCEDURE

The data collected from the children with mild intellectual disability on physical fitness. The 't' ratio was computed to determine the significance of the difference between the group's pretest and post-test means.

TABLE-2: Represents the statistical analysis of the Reaction Time and Co-ordination pre-test and post-test data from the experimental and control groups using the dependent “T” test.

Groups	Variables		Mean	SD	SE	't' ratio
Experimental	Reaction Time (RT)	Pre-Test	27.80	2.35	0.60	7.56*
		Post -Test	23.20			
	Coordination (C)	Pre-Test	5.67	0.67	0.17	21.76*
		Post -Test	9.46			
Control	Reaction Time (RT)	Pre-Test	26.66	4.06	1.05	0.12
		Post -Test	26.80			
	Coordination (C)	Pre-Test	5.66	0.25	0.06	1.00
		Post-Test	5.60			

To determine the significant difference between pre and post-test on Reaction Time (RT) and Coordination (C) of Rhythmic Exercise Training in group, the 't' ratio was used, with a significance threshold of 0.05.

The mean post-test reaction time (RT) in the experimental and control groups was 23.20 and 26.80, as listed in table and the Table value which is 2.14. It indicates a considerable variation in reaction time (RT). The mean post-test for coordination (C) in the experimental and control groups was 9.46 and 5.60 as listed. The table value is 2.14. It reveals a considerable difference in Coordination (C).

Figure.1

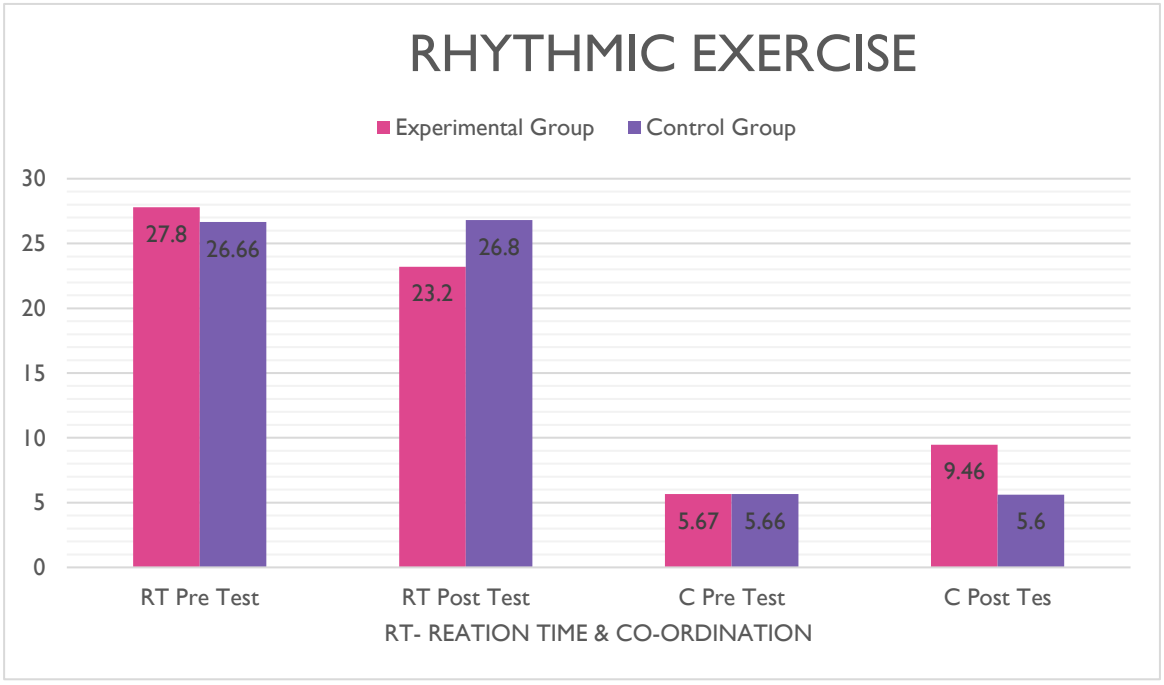

Fig 1: A bar chart displaying the pre- and post-intervention mean values for the Rhythmic Exercise training group and the control group of children with Mild Intellectual Disability, measuring Reaction Time (RT) and Coordination (C).

4. DISCUSSION

The Experimental Group By doing the Rhythmic Exercise, the children with disability have shown improvement in the selected variables namely Reaction Time and Co -ordination. In the other hand the passive control group has failed to show improvement among the selected specific physical fitness parameters.

5. CONCLUSION

The study's findings led to the following conclusions:

1. Despite the study's limitations, it was evident from the results that training in rhythmic activities for a full twelve weeks significantly improved the physical fitness of children with mild intellectual disabilities in terms of reaction time and co-ordination.

2. It was also determined that children with mild intellectual disabilities in the control group did not exhibit statistical improvement differences in physical fitness measures

3. Moreover, it was concluded that the training program for rhythmic activities seems to be a secure and useful intervention method for enhancing the physical fitness characteristics of children (mild intellectual disability).

6. FUNDING

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7. INFORMED CONSENT

Informed consent was obtained from participants' parents.

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