

Effectiveness Of 12-Week Inclusive Physical Activity Program On Health-Related Variable Among Children With Disabilities

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ABSTRACT

This study investigates the Effectiveness of 12-week Inclusive Physical Activity Program on Health Related Variable Among Children with disabilities. To achieve this study (N= 30), Female Children with -mild Intellectual disabilities IQ level between 50 to 70, Age between 14 to 18 were participated, in Coimbatore District, Tamilnadu, India. This participant did not go under any specific training program in their past record, were alone participated. The total number of thirty subjects was equally divided into two groups. Each of the group consist of fifteen children (n=15), where experimental group I consists of (n=15), and control group II consists of (n=15). The experimental group underwent the Inclusive Physical Activity Programme for twelve weeks. On the other hand, the control group did not undergo any physical activity program for twelve weeks. All the subjects (N=30) were evaluated on selected health-related variables, namely Body Mass Index, Resting Heart Rate, Reaction Time, and Coordination, and these variables were tested with the standardized test – BMI calculator, Digital pulse monitor, Nelson test, Alternate Hand-Eye Coordination test, before the Inclusive physical activity program and after the end of the program and using ‘t’ test statistically analyzed. The findings conclude that the study has a significant effectiveness on the inclusive physical activity training among the mild intellectual children.

Keywords: *Inclusive Physical Activity, Health Related Variables, Mild Intellectual disabilities*

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1. INTRODUCTION

Physical fitness is being the overall wellbeing aspect, However, the children with the disabilities are lacking in the physical activity and the physical fitness (Adamo, K. B.,2015), engaging them in the physical activity can be more helpful (Brett et al., 2015) to live a healthy life and make them physically fit and lead a well-being in their physical fitness related components. The challenges that they face in them like physical co coordinative and socialization (Sharma et al., 2024) can make more complicated to do the physical activity and get into the physical fitness (Hilgenkamp & Oppewal., 2022) also to be socialized in the environment according to the many research this has been proven. Since the physical fitness is a basic necessary for all the age categories it's the most important to the children with disabilities also to lead a healthy and joyful life style (Krivsun & Pochekeva., 2023), and also physical activity plays a major role in the growth and development of the children, as it has been said by the author Jansma in 2016 that physical activity is the essential thing for the children growth and development , as its promote the physical health and enhance the social skill and boost the self-esteem (Basak & Moitra, 2024).

Since, this inclusive physical activity can give the effective approach to the children to overcome the challenges they face and lead a effective life with physical fitness, this intervention program has been stretched according to the children adaptability and capacity building with regular practice. Allowing them to be engaged in the intervention program alongside the peers to be supportive with the inclusive environmental support. This intervention program has deigned to provide the opportunity for the children with disabilities to explore the benefits on physical fitness benefits related to the health aspects.

However the inclusive programs ensure the children's engagement in the physical activity , regardless of their disabilities they can be engaged in this program accordingly and the intervention program has been modified according to the capability and need of the children to be engaged in this program so that the children with disabilities can be enjoyable and effective way to do the physical activity to improve the social and emotional skill such as self-esteem, teamwork, emotional skill can be into their part of the beneficial

Definition of Key Terms

Physical movement refers to any bodily activity produced by muscles that requires as a energy expenditure. It encompasses a range of activities, including sports, exercises, and daily tasks, that improve physical fitness and overall health.

Inclusive Physical Activity Program: An inclusive physical activity program is a structured set of physical activities designed to accommodate individuals of varying abilities.

Health Variables: Health variables such as physical fitness, physiological aspects, and psychosocial aspects, directly involved to the health components of physical fitness. (CoJocar, D.,2024). These include cardiovascular fitness, muscular strength, flexibility, body composition, and psychological well-being. Children with disabilities often exhibit delayed physical and motor development (Roşu, D.,2024). This affects their ability to participate in traditional physical activities.

Design of the Methodology:

The study consists of thirty female children, with mild intellectual disabilities with the IQ level between fifty to seventy, aged 14 to 18 years, from Coimbatore, Tamil Nadu, India. These participants had no prior experience with any specific training program or individual physical activity, making them eligible to take part in this study. The children were equally grouped into two, with 15 children in each group.

Experimental Group I: 15 participated in the 12-week Inclusive Physical Activity Program.

Control Group II: 15 were not participated in Inclusive Physical Activity during the 12-week program but were measured the baseline and post measurement, before and after 12 weeks program.

2. INTERVENTION

The Group I which is experimental where participated in a structured of Inclusive Physical Activity Program over 12 weeks. The program included various physical activities designed to accommodate the abilities of children with mild intellectual disabilities in inclusive way where children without disabilities will act as partners for the children with mild intellectual disabilities, focusing on improving Health-Related Variables, namely - Body Mass Index, Resting Heart Rate, Reaction Time, Coordination. The control group was not a part in program during 12 weeks of program. They were in their daily routine.

Inclusive Physical Activity Programme and criterion measures :

To measure Body Mass Index, the related activity was given to children :

Gradual increase in physical activity levels with basic aerobic steps to promote calorie expenditure and improve

cardiovascular health was given in the inclusive way. Weight in kg/Height in meters square formula was used to find the BMI of children.

To analyze the Resting Heart Rate for children:

Activity with slow progress like walking for a minimum time to the maximum minute which can be covered by children was given , slow jogging and walking in between was given . Digital heart rate machine was used to find the RHR of children

To measure the Reaction Time for children:

The activity which can be reactive was given like children response for the rhythm and counts while doing the activity. Nelson test tool was used to find the reaction time of children.

To measure the skill related to Coordination activity for children :

The activity such as similar to hand eye co-ordination was given: balanced physical activity exercise, hand eye coordinative related movements, hand eye coordinated drill exercise in rhythm was given , similarly like tossing the ball with the rhythmic count, such kind of drill and movement was given. Alternatives Hand eye coordination test was taken for the children

All the following activity was given following the health related variable in the inclusive type activity to enhance their health variables with the expert the training was deigned.

3. STATISTICAL ANALYSIS

The selected Health-Related Variables -Body Mass Index, Resting Heart Rate, Reaction Time, and Reaction Time were analyzed from the collected data of children with disabilities (mild intellectual disabilities children) in both groups using a paired sample t-test.

Experimental Group: Measurements were taken before and after 12 weeks of Inclusive Physical Activity Program.

Control Group: Measurements were recorded on the before and after the 12 weeks program, where children with mild intellectual disabilities did not participate in the Inclusive Physical Activity Program. Was employed to analyze the data collected from children with mild intellectual disabilities.

TABLE-1

The table presents the results of paired sample t-tests of Experimental Groups and Control Group of Health-Related Variables

	Variables	Pre-test	Post-test	SD	SE	't' ratio
Experimental G	Body Mass Index	21.15	19.18	1.24	0.32	6.11*
	Resting Heart Rate	87.93	84.00	6.45	1.66	3.16*
	Reaction Time:	28.80	23.46	8.33	2.15	2.47*
	Coordination	8.60	12.06	3.60	0.93	3.72*
	Body Mass Index	21.15	21.08	2.22	0.57	0.12
Control G	Resting Heart Rate	87.93	88.00	1.33	0.34	0.19

Reaction Time:	28.80	28.86	0.59	0.15	0.43
Coordination	8.53	8.66	0.51	0.13	1.00

Table-1 Shows that the experimental group, significant improvements were observed across all measured parameters. Body Mass Index (BMI) decreased from 21.15 to 19.18 ($t = 6.11$), indicating a substantial reduction in BMI following the intervention. Resting heart rate also showed a decrease from 87.93 to 84.00 ($t = 3.16$), suggesting enhanced cardiovascular fitness. Reaction time improved significantly from 28.80 to 23.46 ($t = 2.47$), reflecting better neuromotor function. Coordination demonstrated a marked increase from 8.60 to 12.06 ($t = 3.72$), indicating better motor skills. In contrast, the control group showed no significant changes across all measured parameters, including BMI ($t = 0.12$), resting heart rate ($t = 0.19$), reaction time ($t = 0.43$), and coordination ($t = 1.00$), confirming that the intervention in the experimental group was responsible for the observed improvements.

FIGURE 1

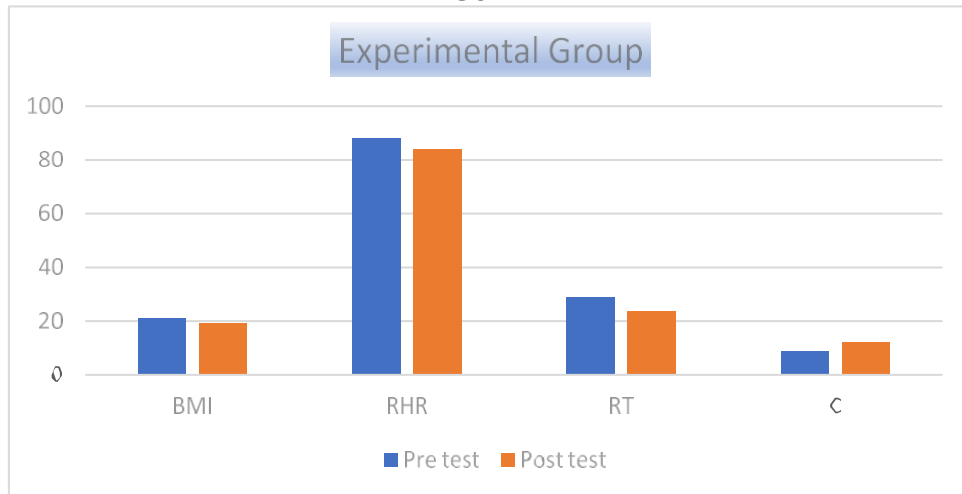


Figure 1- Shows the value of Experimental group of selected variables-*Body Mass Index, Resting Heart Rate, Reaction Time, Coordination*

FIGURE 2

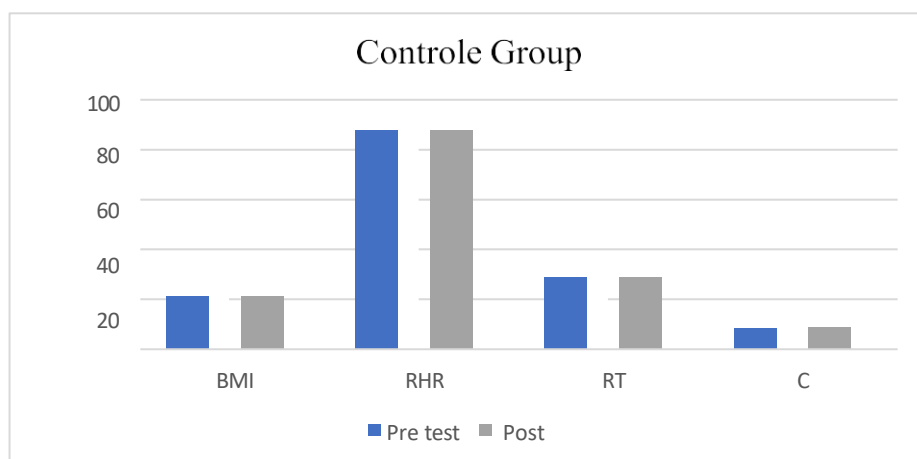


Figure 2- Shows the value of Controle Group on selected variables namely-*Body Mass Index, Resting Heart Rate, Reaction Time, Coordination*

4. RESULTS

The program yielded significant improvements in **Health-Related Variables**.

The **Experimental group** demonstrated significant improvements across all parameters, including Body Mass Index, Resting Heart Rate, Reaction Time, And Coordination. These variable changes reflect the positive effectiveness of the intervention.

The **Control group**, in contrast, showed no significant changes in any parameter.

5. DISCUSSION

The findings shows the effectiveness on this programs on **Health-Related Variables** in children with disabilities (mild intellectual disabilities children). Improved **Body Mass Index, Resting Heart Rate, Reaction Time, Reaction Time**. suggest that structured interventions can bridge developmental gaps and enhance participation. The program also fostered social engagement and confidence, reinforcing the **Health- Related aspects and** benefits of inclusive physical activity. These findings align with previous research highlighting the role of adaptive physical education in promoting holistic health.

6. CONCLUSION

This study concludes that a 12-week inclusive physical activity program can significantly improve **Health-Related** aspect in children with disabilities (of children with mild intellectual disabilities). Such programs hold immense potential for fostering health, inclusion, and overall

well-being. Educators, therapists, Physical Educators, Coaches are encouraged to implement and advocate for inclusive physical activity program tailored to the needs of this population.

Ethical Clearance

Ethical clearance has approved by Avinashilingam Institute for Home Science and Higher Education for women, Coimbatore. And also Parental concern form & Student concern form has been recieved.

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Conflict of Interest

Nil

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