

EFFECTIVENESS OF COMBINED PHYSIOTHERAPY AND STRUCTURED RECREATIONAL ACTIVITIES IN ENHANCING FUNCTIONAL INDEPENDENCE AMONG CHILDREN WITH CEREBRAL PALSY

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Abstract Cerebral palsy (CP) is a non-progressive neurodevelopmental condition characterized by mobility, posture, and functional performance limitations. These disabilities frequently impede freedom in daily tasks and reduce engagement in the home, school, and community settings. While traditional physiotherapy improves motor ability, targeted leisure activities may benefit rehabilitation by enhancing interest and encouraging purposeful movement. To assess the efficacy of combined physiotherapy and structured leisure activities in improving functional independence in children with cerebral palsy. Ten children with spastic cerebral palsy, ages six to twelve, participated in an experimental investigation. A control group (n = 5) and an intervention group (n = 5) were randomly assigned to receive conventional physiotherapy and structured leisure activities, such as dance and music-based exercises. For twelve weeks, both groups attended three weekly treatment sessions. The Functional Independence Measure for Children (WeeFIM) was used to measure functional independence. Following the intervention period, both groups showed gains. Children in the intervention group, however, had higher improvements in functional independence. The intervention group's mean WeeFIM score grew from 76.8 to 93.6, whereas the control group's grew from 76.2 to 82.0. For children with cerebral palsy, combining structured recreational activities with traditional physical therapy seems to improve functional independence and motor performance more well than using traditional physical therapy alone. Recreational interventions that are entertaining and goal-oriented may increase engagement and improve recovery results.

Keywords: Cerebral palsy, physiotherapy, functional independence, structured recreational activities.

INTRODUCTION:

The phrase "cerebral paralysis" was first used over 170 years ago by William Little, an English orthopedic physician who connected difficult delivery and infant hypoxia to limb stiffness and later musculoskeletal problems. According to the current definition, which was developed by a global panel of experts, cerebral palsy is a group of permanent, though not always stable, impairments of posture, movement, and motor function caused by a non-progressive interference, lesion, or anomaly of the developing or immature brain. Cerebral palsy (cp) is a well-known neurological disorder that begins in early childhood and lasts a lifetime. According to population-based research carried out globally, the prevalence estimates of cerebral palsy (CP) range from 1.5 to 4/1000 live births or children of a particular age group. Physiotherapy improves range of motion, strength, and muscle endurance in children with cerebral palsy. The primary goal of physiotherapists is to assist children in becoming as mobile and independent as possible. Physiotherapy can help with inactivity, poor control over movement patterns, contractures, muscular shortening, stiffness or hypotonia, and preventing musculoskeletal problems. The therapy approach consists of weight-bearing exercises, passive stretching, incremental habitation activities, gradual resistive exercises, and passive movement. Strength training activities are crucial for the recovery of people with cerebral palsy, according to Barber, who also pointed out that traditional exercise therapy has been demonstrated to improve local muscular endurance, muscle strength, and joint range of motion. Structured recreational activities are essential to meeting children's developmental needs. These activities provide predictable environments that boost engagement, reduce anxiety, and promote social, emotional, and physical development thanks to their carefully thought-out routines and visual aids. Activities that encourage self-expression, sensory modulation, and body awareness include dance/movement therapy, music therapy, arts & crafts, and horseback riding. These therapies help children feel better, become more self-reliant, and improve their social

skills. The Functional Independence Measure is a tool developed by C.V. Granger in 1990 to assess children's independence in relation to function. Functional evaluation has many advantages. It can evaluate the environment and conditions necessary to complete the work in an educational community setting. The study's goal was to determine whether including organized leisure activities into conventional physical therapy may enhance the motor performance, functional independence, involvement, and overall quality of life of kids with cerebral palsy. The findings of this study are expected to contribute to the development of more engaging and effective rehabilitation programs for children with cerebral palsy.

NEED OF THE STUDY

As stated by Duymaz et al. (2019) and Vinolo-Gil et al. (2021). However, research on how organized leisure activities and physical treatment raise people's quality of life is still lacking. Thus, the study sought to determine how engaging activities combined with physical treatment could enhance the quality of life for children with cerebral palsy.

POPULATION AND SAMPLE

Ten kids between the ages of six and twelve who had been diagnosed with spastic cerebral palsy were chosen from the outpatient physical therapy division of a tertiary care rehabilitation facility. After receiving informed consent from their parents or legal guardians, participants who fit the inclusion criteria (GMFCS Levels I–III, medically stable, and capable of following basic instructions) were enrolled. Children with significant cognitive impairment, uncontrolled seizures, recent orthopaedic surgery, or other neurological conditions were not included. Participants were recruited using a convenience sampling technique, and then they were randomly assigned to either the control group (n = 5) or the intervention group (n = 5).

METHODOLOGY

Ten children with spastic cerebral palsy, ages 6 to 12 (GMFCS Levels I–III), participated in this randomized experimental investigation. Convenience sampling was used to recruit participants, who were then randomly assigned to either an intervention group (conventional physiotherapy plus structured leisure activities) or a control group (conventional physiotherapy). For twelve weeks, both groups underwent three weekly sessions of treatment. Dance-based motions, rhythmic stepping, and music-based exercises were examples of structured leisure activities. The Functional Independence Measure for Children (WeeFIM) was used to measure functional independence both before and after the intervention. The groups' pre- and post-intervention results were compared using statistical analysis.

Statistical Analysis

Pre- and post-intervention scores were compared within and between groups using appropriate statistical methods, with statistical significance set at $p < 0.05$.

RESULTS AND DISCUSSION

The intervention group demonstrated substantially greater improvements in functional independence than the control group.

Table:1 Comparison of pre and post-test values of control group

si.no	variables	means		t-value	level of significance
1	WeeFIM	Pre-test	76.2	3.67	$P < 0.05$
		Post-test	82.0		

Table:2 comparison of pre and post-test values of intervention group

si.no	variables	means		t-value	level of significance
1	WeeFIM	Pre-test	76.8	8.41	$P < 0.05$
		Post-test	93.6		

The results show that when physiotherapy was combined with organized leisure activities, functional independence and gross motor function improved more than when traditional physiotherapy was used alone.

Following the intervention time, both groups showed improvements. Children in the intervention group, however, had more improvements in their level of functional independence. The intervention group's mean WeeFIM score rose from 76.8 to 93.6, whereas the control groups grew from 76.2 to 82.0. Additionally, compared to the control group, gross motor function significantly improved in the intervention group.

The current study showed that children with cerebral palsy improved their functional independence more when structured leisure activities were incorporated into traditional physiotherapy. Recreational activities may boost motivation and treatment adherence by promoting repeated intentional movements in a pleasurable setting.

Dance-based and music-assisted movement workouts probably improved balance, coordination, and task participation while also boosting self-esteem and social interaction. These results are in line with earlier research indicating that engaging, activity-based rehabilitation techniques can improve children's functional outcomes.

Enhanced independence in everyday functional tasks is indicated by the observed improvement in WeeFIM scores, indicating that integrated rehabilitation techniques may have significant clinical advantages beyond improvements in motor performance alone.

CONCLUSION

When it came to improving functional independence in children with cerebral palsy, integrated physiotherapy in conjunction with structured recreational activities proved to be more beneficial than traditional physiotherapy alone. In pediatric neurorehabilitation, adding engaging, structured movement exercises to rehabilitation programs may increase participation and lead to improved functional outcomes.

The small sample size, single-center design, brief intervention duration, and absence of long-term follow-up were the study's limitations. Furthermore, the study did not evaluate more general psychosocial outcomes like quality of life and instead concentrated on functional independence. To bolster the evidence for pediatric rehabilitation, future research should incorporate bigger multicenter samples, longer follow-up periods, validated quality-of-life measures, and comparative analyses of recreational interventions like aquatic therapy or sports-based programs.

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