

Modified Yoga on Facilitation of Motor Function for Persons having Multiple Disabilities (Cerebral Palsy with Intellectual Disability)

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Received: 10.01.2023 Revised: 25.01.2023

Abstract

This study examined the effectiveness of Modified yoga in improving motor function in individuals with Multiple Disabilities (Cerebral Palsy with Intellectual Disabilities). The study involved 15 individuals aged 12 to 18, and the Gross Motor Function Measure (GMFM) and Spinal Alignment and Range of Motion Measure (SARROM) were used to assess motor function before and after the 10-week intervention. The results showed that Modified yoga significantly improved motor function, as demonstrated by a rise in GMFM scores and improved spinal alignment and joint range of motion, with p-values of 0.008 and 0.0109, respectively.

Introduction

A flaw or lesion of the developing brain can cause cerebral palsy, a static encephalopathy that can be described as a non-progressive condition of posture and movement sometimes accompanied by seizures and abnormalities in speech, vision, and intellect. (U. Shailaja, P. N. Rao, K. J. Girish, & G. A. Raj, 2014) The condition, which is the main developmental handicap impacting function in children, may be caused by brain insult or injury throughout the prenatal, perinatal, and postnatal periods. 2007 (Martha Wilson Jones).

In children born with a body weight below 1500 g, the prevalence of CP is 70 times higher than in children born with a body weight exceeding 2500 g, according to data from Europe. The average frequency of CP is 2.08 per 1000 live births. 2020 (SareckaHujar&Kopyta). Many neuromuscular and musculoskeletal issues can cause delays in motor performance. Some of these issues are spasticity,

dystonia, contractures, aberrant bone growth, poor balance, and loss of selective motor function (Mark E. Gormley 2001). Families face challenges and undergo significant lifestyle changes when raising a kid with cerebral palsy. Uncertainty and confusion, as well as other difficult-to-control emotions, might arise when a diagnosis is unexpected.

In addition to motor difficulties, children with CP may also have additional related deficits that require special consideration (Christine Cans, Javier de la 2008). Moreover, speech and language therapy (SLT) services assist patients' communication abilities to the fullest extent possible and enable them to participate in social interactions as independently as possible (Lindsay, Juliet Goldbart, and Julie Marshall 2004).

Yet, in essence, the term "yoga" now refers to a disciplined method of joining the body and mind in order to unite the self (soul) or the union of the individual self

with the transcendent self. (HR Schuacher and M. Garfinkel 2000). Yoga is a traditional Indian form of physical and mental practice that has been utilized as a therapeutic tool for millennia (Emmey Ripoll and Dawn Mahowald 2002). The root yug (to connect, or yoke) is where the Sanskrit word "yoga" is derived (to bind together or to concentrate).

Many health benefits of yoga include improving musculoskeletal conditions, controlling blood sugar levels, and maintaining a healthy cardiovascular system. Yoga has also been demonstrated to have significant psychological advantages, as yoga practice can aid to boost mental acuity and good moods while lowering aversive emotions like aggression, despair, and anxiety (Ina Stephens 2016).

Asanas or postures, pranayama (breathing exercises), and several levels of meditation leading to Samadhi—a condition where one merges with the object of meditation—come first in these writings' descriptions of the practice of Hatha yoga. Niyama, or purification, such as fasting, comes next. Hatha yoga typically consists of three components: asanas (postures), pranayama (breathing techniques), and meditation, all of which are typically combined.

The standing, balancing, forward bends, back bends, and twists that are a part of Hatha yoga postures all serve to controllably strengthen the body and enhance flexibility. Controlled breathing, or pranayama, is a key element of relaxation and a modulator of autonomic nervous system activity. It aids in mental clarity. Dhyana, the yoga meditation practice, helps to clear and concentrate the mind (David Riley, MD 2004). In addition to assessing their postural stability, this initiative will assist the CP kids in learning yoga in a modified method so they can benefit fully from it in their daily activities.

Yoga has psychological advantages in addition to physical ones. According to research, yoga can help relieve depressive and insomnia symptoms, foster stronger social bonds, and lower stress and anxiety levels. According to certain research, yoga-based therapies may be useful in treating post-traumatic stress disorder in veterans and active-duty service members. Novotney (2009).

However, Modified yoga has not been addressed in persons having Multiple Disabilities (Cerebral Palsy with Intellectual Disabilities) based on the research evidence. So, this present study considered determining the effectiveness of Modified yoga on the facilitation of motor function for persons with Multiple Disabilities (Cerebral Palsy with Intellectual Disabilities).

Aim of the study:

To study the effectiveness of Modified yoga on the facilitation of motor function for persons having Multiple Disabilities (Cerebral Palsy with Intellectual Disabilities).

Objectives of the study:

1. To develop yoga in a person having Multiple Disabilities (Cerebral Palsy with Intellectual Disabilities).
2. To develop modified yoga in a person having Multiple Disabilities (Cerebral Palsy with Intellectual Disabilities).
3. To implement the modified yoga in a person having Multiple Disabilities (Cerebral Palsy with Intellectual Disabilities)
4. To assess the effect of modified yoga on motor function in a person having Multiple Disabilities (Cerebral Palsy with Intellectual Disabilities)

METHODOLOGY

In this study, the Pre-test-Post-test design and practical sample were chosen. The NIEPMD rehabilitation specialists have identified 15 individuals with Multiple Disabilities (Cerebral Palsy with

Intellectual Impairment), with ages ranging from 12 to 18. Gross Motor Function Measure (GMFM) and Spinal Alignment and Range of Motion Measures were used to evaluate the children before to the test (SARROM). The modified yoga was provided to the samples for 10 weeks, and a post-test was done at the end of the 10th week to determine how well it helped the multiple impairments' motor function (Cerebral Palsy with intellectual disabilities).

Inclusion Criteria

Persons having Multiple Disabilities (Cerebral palsy with Intellectual Disabilities)

Age group 12 to 18 years

Exclusion Criteria

Persons with associated mental illness.

Persons with Hearing and Visual Impairments.

Persons with cardiovascular condition.

ASSESSMENT TOOL

Gross Motor Function Measure (GMFM)

The testing phase comprised four dimensions (A) lying and rolling (B) sitting (C) crawling and kneeling (D) standing. (E) Walking, Running & Jumping. The gross motor function measure test is an observational clinical tool designed to evaluate changes in motor function in children with cerebral palsy.

The scoring system of the GMFM is a four-point scale that consists of 66 items divided into five dimensions of gross motor function:(a) lying and rolling, (b) sitting, (c) crawling and kneeling, (d) standing, and (e) walking, running and jumping. Scoring keys are 0=does not initiate, 1=initiate, 2=partially completes, 3=completes.

Spinal Alignment and Range of Motion Measure (SARROM)

SARROM is one of the common tools used to assess posture and flexibility in individuals with Cerebral Palsy (CP). The

scoring system of SAROMM is of 0 to 4 scale that consists of 26 items.

0 - no alignment limitation with active correction.

The 1-flexible passive limitation is muscular and dynamic limitation is reducible through passive movement.

The 2-fixed limitation is structural not reducible and minimal.

The 3-fixed limitation is structural static not reducible and moderate.

The 4-fixed limitation is structural static not reducible and severe. Specific descriptors for scoring items are detailed in the administration and scoring guidelines.

PROCEDURE

Parents of people with Multiple Disabilities (Cerebral Palsy with Intellectual Disability) were told of the study's objectives and gave their consent after being given this information. Based on the inclusion and exclusion criteria, a practical sample technique was used to choose 15 numbers participants. The confidentiality of all the information was guaranteed to the participants. The study was carried out in person at NIEPMD.

The pre-test and post-test were conducted by using GMFM and SAROMM. The modified yoga was implemented in the samples for 10 weeks based on the GMFCS levels. The post-test was conducted at the end of the 10th week. The data were analyzed statistically.

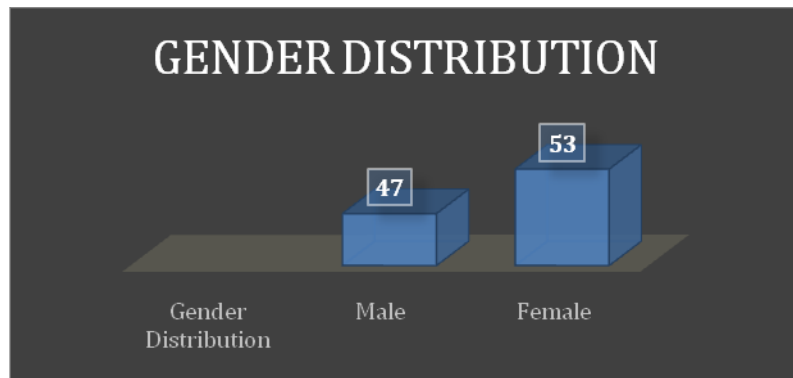
DATA ANALYSIS

The data collected from the samples before and after the 10th-week session were entered into pre and post-test. The test was valued and tabulated, data analysis was done from the respective domains below using a paired t-test to find out the effectiveness of modified yoga on the facilitation of motor function for Multiple Disabilities (Cerebral Palsy with Intellectual Disabilities).

RESULTS AND DISCUSSION

The study's main aim is to find out the effectiveness of modified yoga on the facilitation of motor function for Multiple

Disabilities (Cerebral Palsy with Intellectual Disabilities).



Graph- 1 comparison of the gender difference in persons with Multiple Disabilities (Cerebral Palsy with Intellectual Disability)

For this study, graph-1 showed the percentage of 15 numbers of subjects with Multiple Disabilities (Cerebral palsy with Intellectual Disabilities), males are 47% and Females are 53% participated.

Table-1 Percentage value of pre and post-test score of Gross Motor Function Measure (GMFM.)

GMFM level	Pre-test	Post-test
Level I - lying & rolling	85%	90%
Level II - sitting	75%	83.33%
level III - crawling & kneeling	75%	83.33%
Level IV – standing	30%	33%
Level V – walking, running, jumping	30%	33.3%

Table-1 showed the percentage value of Pre and post-test results of GMFM, the percentage score of Level-I lying & rolling pre-test score of 85% and the post-test 90%, the percentage score of level-II sitting score of pre-tests 75% and the post-test 83.33%, level-III crawling and kneeling score of pre-tests 75% and the post-test 83.33%, Level-IV standing score of pre-tests 30% and the post-test 33%, level -V walking, running, Jumping score of pre-tests 30% and the post-test 33.33% respectively.

Table-2 Comparison of pre and post-test scores of GMFM

GMFM	Mean	SD	T value	P value
Pre-test	59.00	26.786	4.802	0.008
Post-test	64.598	28.823		

Table-2 showed the value of the comparison of the pre and post-test of GMFM. The result has been analysed in various levels of GMFM in persons with Multiple Disabilities (Cerebral Palsy with Intellectual Disabilities). The mean value of the pre-test score of GMFM was 59.00 and the post-test score was 64.598, with a score of t value 4.802. The p-value of the

Gross Motor Function Measure was 0.008 and this study proved that the motor function showed significant improvement after the implementation of Modified yoga.

Table-3 Comparison of pre and post-test scores of SARROM

SARROM	Mean	SD	T-test	P test
Pre-test	1.80	0.45	4.49	0.0109
Post-test	2.90	0.55		

Table-3 showed the value of comparison of pre and post-test of SAROMM. The result has been analyzed in spinal alignment and joint range of motions of SAROMM in persons with Multiple Disabilities (Cerebral Palsy with Intellectual Disabilities). The mean value of the pre-test score of SAROMM is 1.80 and the post-test score is 2.90, with a score of t value 4.49. The p-value of The Spinal Alignment and Range Motion measure was 0.0109. This study result proved that the motor function of spine alignment, and upper & lower extremities ROM showed a significant improvement after the implementation of Modified yoga. The result is also supported by Ashoke Mukherjee, 2019, who conducted a study about the effect of yogic interventions on Cerebral palsy: A systematic review and the author proved that yogic intervention

develops the physical performance of children with Cerebral palsy.

The study's overall result indicated that motor function significantly improved after Modified yoga for persons with Multiple Disabilities (Cerebral Palsy with Intellectual Disabilities).

CONCLUSION

The result of the study concluded that the effect of modified yoga gives a positive impact on the facilitation of motor function for persons having Multiple Disabilities (Cerebral Palsy with Intellectual Disabilities).

RECOMMENDATION

This modified yoga needs to be implemented in larger groups of persons with multiple disabilities.

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