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ORIGINAL

ANALYZING THE EFFECTIVENESS OF PHYSICAL THERAPY IN IMPROVING MOTOR FUNCTION IN CHILDREN WITH NEUROLOGICAL DISORDERS

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ABSTRACT

The quality of the trials and statistical variations in the between-group comparisons within each intervention category served as the foundation for our evidence synthesis. However, the majority of research merely used p-values to report the differences, which do not indicate the impact magnitude. One must depend on the groups' reported baseline and endpoint data in order to make clinical judgements. Effect sizes were only shown in three experiments. Many studies' small sample sizes also increased the risk of type II error, which occurs when actual group differences are not discernible. The research study based on primary data analysis for determine the research used smart PLS software and generate result included descriptive statistic, the correlation coefficient analysis also that explain the model. The fact that measurement timing and intervention durations differed is another drawback. Therefore, care must be used while interpreting the findings. The direction and quality of the evidence may shift with further experiments. There are still many unanswered questions about the therapeutic consequences of different therapies for children with cerebral palsy. There are two primary reasons why comprehensive treatment options could be challenging to assess in RCT designs. First, there may be significant individual differences in the intervention's active components. Second, since the objective of a comprehensive intervention is to increase involvement or activity rather than to target individual functions, it is more challenging to control confounders since activities at home, at school, or in kindergarten also have an impact on performance on various levels. More specifically defined therapies, including strength, aerobic, or balancing training, or riding, are easier to assess using a randomized design. The overall research found that direct and significant effect of physical therapy for improving motor

function in children.

KEYWORDS: Effectiveness (EE), Physical Therapy (PT), Motor Function (MF), Children (CC), Neurological Disorder (ND)

1. INTRODUCTION

Due to an additional 21st chromosome, children with Down syndrome have comparable physical characteristics and frequently exhibit impairments in their cognitive, linguistic, and motor development. There may also be a number of anomalies pertaining to the neurological, musculoskeletal, genitourinary, gastrointestinal, endocrine, respiratory, cardiovascular, haematological, and immunological systems. Over the past 50 years, DS people' life expectancy has considerably grown. Improvements in life expectancy and quality of life have made treatments for children with Down syndrome more crucial. A child's early years are a crucial time in their development. During this time, children acquire a wide range of cognitive, physical, verbal, social, and emotional abilities that help them interact with their surroundings. Because it may result in a delay in the acquisition of certain cognitive, emotional, and social abilities, delayed motor development is especially significant. Motor development delays in children with Down syndrome are caused by hypotonia, ligament laxity, joint instability, muscular weakness, and problems with balance and coordination systems (Montoro-Cárdenas et al., 2021). The average walking age and range for children with DS are 24 months and 14–42 months, respectively, while the mean for normally developing children is 13 months and 9–17 months. The development of motor abilities, particularly in children, can be impacted by balance. Children with DS experience delays in the development of their balance due to hypotonia and aberrant posture. Physical therapy (PT) programs for kids with Down syndrome should take balance and motor skills into account since they are interconnected. It has been demonstrated that physical activity and exercise improve motor abilities and muscular strength in both healthy growing youngsters and children with special needs. Walking, balancing, and leaping are examples of fundamental motor skills that should be developed in physical therapy programs. Future issues should also be avoided. The age at which fundamental gross and fine motor abilities are acquired is the focus of the majority of research on motor development in children with Down syndrome. PT was suggested for children with DS in order to improve muscular strength and balance, according to Ruiz-Gonzalez's meta-analysis, which covered a sizable population of children with DS (Inamdar et al., 2021). It was noted that various PT intervention patterns were helpful in enhancing the various motor functions. However, no research comparing the impact of starting physical therapy early (particularly in the first year) versus later on these children's motor development has been published in the literature. Early intervention is known to be important, but there are a number of obstacles that can delay the start of physical therapy. These include medical issues in children

with Down syndrome, families' lack of knowledge about the condition, doctors' sometimes-delayed referrals to physical therapy, families living in rural areas, and issues specific to the health care system. In order to highlight this issue and increase awareness, the study compares the gross and fine motor development of children with DS who received physical therapy (PT) and those who did not, for the reasons we outlined, at a young age. It also shows the impact of beginning PT programs early (before the age of one year) on motor development. Furthermore, we looked into how early PT programs (beginning before the age of one year) affected motor development (De Miguel-Rubio et al., 2020).

2. Literature Review

Studies explain that spastic paralysis is a super durable problem of the stance & development, that may bring about hindrances of Gross centrifugal capability, amid remaining. Hippo-therapy is an arising mediation to advance centrifugal recuperation in sufferers along neural problems, giving a soft, exact, cadenced, & monotonous example of development toward the sufferer. The outcomes acquired in the current audit demonstrate the possible advantage of Hippo-therapy mediation in working on Gross centrifugal capability in youngsters along spastic paralysis (De Guindos-Sanchez et al., 2020). This exploration investigates the progression of neural exercise-based recuperation & the progressions accomplished in therapy methods pointed toward improving useful portability. This study investigates the impact of former exploration in neurophysiological & exploratory patterns on restorative methodologies, featuring the requirement of integrating progressions in nervous system science toward medical exercise. The exploration stresses the significance of centrifugal erudition, brawn science, development of prostheses, & practice scientific discipline in enhancing centrifugal execution & working with utilitarian centrifugal recuperation (Taye, 2024). The objective of this study is to direct a deliberate survey & postmodern-examination on the viability of non-intrusive treatment mediations to work on ability to sit in small kids along or in danger toward spastic paralysis. There's an absence of solid proof to non-intrusive treatment mediations focusing on séance in small kids along or in danger toward spastic paralysis because of restrictions in systemic meticulousness & test measurements. Parts of impedance remedied joined with practical equilibrium preparing should to be investigated to further develop séance in youngsters determined to have spastic paralysis(Inamdar et al., 2021). The study sums up the discoveries & assess the job of oscillatory treatment in the recovery of neural sicknesses. Whole-body trembling & Focal-brawn trembling seems to assume an extensive part in lessening spastic & further developing step, equilibrium, & centrifugal capability in fondle sufferers. On the other hand, trembling treatment is by all accounts unfit to decrease spastic in numerous induration & spastic paralysis (Moggio et al., 2022). Studies dissect the viability

of Sega Wii treatment on utilitarian offset in kids along spastic paralysis. Sega Wii treatment may be viewed as a powerful therapy toward working on utilitarian & vigorous offset in kids along spastic paralysis, particularly when joined with conventional physical treatment in thirty-min meetings with mediations enduring extended than three Weeks(Montoro-Cárdenas et al., 2021). This orderly audit & postmodern-examination researches the impacts of solidarity preparing scheme in kids & youths along spastic paralysis to further develop capability, action, & cooperation. The results of this study show that a potency preparing scheme has definite useful & action consequences for brawn force, offset, dynamic gait index, or Gross centrifugal capability unless expanding spastic to kids & youths with spastic paralysis in gross centrifugal capability Grouping Framework scales 1, 2, & 3 when satisfactory measurement & explicit standards are used(Merino-Andres et al., 2022). A precise survey & postmodern-examination was led to assess the viability of computer simulation on topmost Limb centrifugal operate in sufferers along Brown-Sequard syndrome contrasted & ordinary exercise-based recuperation. Studies indicates that the ongoing proof toward computer simulation mediations to further develop topmost Limb centrifugal operate in sufferers along Brown-Sequard syndrome is restricted. Additional examinations utilizing vivid frameworks to recognize the vital angles that increment the medical effect of computer simulation mediations are required, also exploration to demonstrate the advantages of the utilization of virtual reality in the restoration of sufferers along Brown-Sequard syndrome in the medical context(De Miguel-Rubio et al., 2020). Studies expects to find the strong connection among augmented simulation & restoration. Scholars surveyed the viability of computer generated simulation-founded restoration contrasted with traditional restoration on centrifugal capability recuperation of 3 sufferer gatherings: sufferers along a verdict of spastic paralysis, Paralysis Agitans infection, or fondle(Amirthalingam et al., 2021). This efficient survey analyzed the impact of centrifugal & actual work mediation on centrifugal results of youngsters with mental imbalance range jumble & the impact of centrifugal acquiring techniques on centrifugal expertise securing, maintenance, & move. Outcomes from degree 2 & 3 centrifugal mastering concentrates on upheld that centrifugal expertise securing enhanced along optical, contra vocal, directions yet was not impacted by contrasts in educational faculty(Ruggeri et al., 2020). The aim of this study is to assess the viability of Neurological Euphony Treatment utilizing a conventional & a mechanical mediation (flexible affect-show) in working on the teamwork of kids along Pervasive Developmental Problem, as an essential result, & the schedule & power manage of their developments as optional results. Neurological Euphony Treatment is a viable therapy to further develop the teamwork abilities of kids along Pervasive Developmental Problem. Versatile affect-shows give a bigger number of advantages than the utilization of frame drums(Cibrian et al., 2020). Studies determined that spinal imaging has reformed how researchers might interpret mind capability & has turned into

a fundamental device toward scholars concentrating on neurologic problems. Spina imaging methods have altogether progressed how scholars might interpret cerebrum capability & gave fundamental experiences toward neurologic issues. Although, additional examination toward harmless medicines like electron optics, magnetic resonance-imaging, & Transcranial Electrical Arousal is important to keep on growing latest symptomatic & remedial techniques toward neurologic problems(Yen et al., 2023). The purpose of this research is to investigate the impacts of actual activity intercession on the central side effects, centrifugal capabilities & leader capability amid youngsters along consideration shortage hyper-activeness jumble. The study results indicate that actual activity may assist with reducing the side effects of consideration shortage hyper-activeness jumble in kids. Particularly, it may further develop consideration, leader capability, & coordinated movements(Sun et al., 2022). The reason for this audit was to assess & investigate the ongoing better proof toward the viability of activity perception treatment on Upper appendage capability recovery in youngsters along tetraplegic spastic paralysis. This survey recommends activity perception treatment was viewed as an auspicious mediation to Upper appendage restoration in youngsters along spastic paralysis(Alamer et al., 2020). The study exhibits numerous beneficial outcomes from actual activity. The current review inspected the effect of an organized actual activity scheme contrasted with therapy as expected on the Gross centrifugal capabilities of kids determined to have neurodevelopmental jumble. Studies recommends that organized actual activity projects may work on Gross centrifugal capabilities in kids along neurodevelopmental jumble(Castaño et al., 2024). Researchers reveal that computer generated simulation & centrifugal symbolism are arising procedures to restoring individuals along paralysis Agitans. Computer generated simulation & centrifugal symbolism blend not have gone concentrated in paralysis Agitans sufferers. This research was directed to explore the consolidated impacts of computer generated simulation & centrifugal symbolism strategies on the equilibrium, centrifugal capability, & exercises of day to day subsistence of sufferers along paralysis Agitans (Kashif et al., 2022). Studies suggest that spastic paralysis is a certain one primary drivers of handicap in adolescence. Computer generated simulation has been utilized being therapy choice in this populace, but its viability is hazy. Currently, scholars have extremely restricted to confined trust essentially assessment toward use of computer generated simulation in this populace (Fandim et al., 2021). Scholars suggest that progresses in clinical administration of Paralysis Agitans have brought about live prolonged along handicap. In spite of the fact that handicap demolishes throughout the infection, there're indications of inability same in the beginning phases. The comportment of initial handicap combined along the advantages of activity recommends that non-intrusive treatment should to be started before in the infection (Ellis et al., 2021). To ensure extensive & composed concern, the research as well investigates the multi-disciplinary nature of obstetric non-

intrusive treatment putting unique accentuation on joint effort along lineages, parental figures, teachers, & medical services experts. It additionally accentuates the significance of proceeding with examination, guidance, & campaigning to work on the viability & accessibility of obstetric exercise based recuperation administrations, at last advancing the general prosperity of children & their lineages (Sudhir & Sharath, 2023). Studies elaborate that coordinated traditional Chinese Medication & current restoration treatments might be a viable & secure intercession convention to work on Gross centrifugal capability, brawn tonus, & the useful autonomy of kids along spastic paralysis. Although, studies outcomes should to be deciphered cautiously in view of the multiplicity among the inserted examinations(Chen et al., 2023). Studies expected to investigate the ongoing writing on neurobiological therapy in youngsters along spastic paralysis. In light of study discoveries, neurobiological therapy is generally utilized to the recovery of youngsters along spastic paralysis around the world. The boundaries employed to survey the development to the most part contained Gross centrifugal capability, offset, & orthostatic manage(Khanna et al., 2023). Studies claim that mediations in view of leader capabilities in down syndrome themes are powerful to differentiate the mental deterioration & work on the ordinary utilization of chief capabilities in young & grown-ups. Designated intercessions are obligatory to amplifying the advantages of active work, limiting prospective dangers, & at last further developing the general wellbeing results & personal satisfaction to people along down syndrome (Vandoni et al., 2023). The results of this study show that hippo-treatment maybe a viable mediation to further develop a few perspectives connected with positional manage, like stationary equilibrium (particularly in the sit stance), spirited equilibrium, & arrangement (corpse act) in youngsters matured three to sixteen Years, especially along scissors gait(Peia et al., 2023). Scholars explain that upper appendage centrifugal abnormality influence residuum development in Hands & breaking point support in game, athletics, & relaxation exercises. Be that as it may, the outcomes stress the investigation of mobile well-being through customary methodologies, empowering client focused concentrate on plan, lineage-situated strategies, & huge scope examining in prospective examination (Mia et al., 2024). Studies show that inmate recovery assumes a significant part in processing neurologic sicknesses in youngsters & teenagers. Although, there's an absence of flow examination regarding such subject. Particularly, the gathering of sufferers along traumatic brain wound & fondle might estimate their abilities significantly to the soles of solid companions. A more extended length of stay connected fundamentally with more noteworthy development of abilities(Stadler et al., 2024). Scholar studies reveal that the execution of latest innovation toward obstetric consideration & a laid out short term treatment center is portrayed. The plan reasoning procedure employs toward medical services experts & works on medical consideration. Carapaces are powerful devices to utilize in obstetric exercise based recuperation (Dierwechter & Kolakowsky-Hayner, 2024).

3. Smart PLS Algorithm

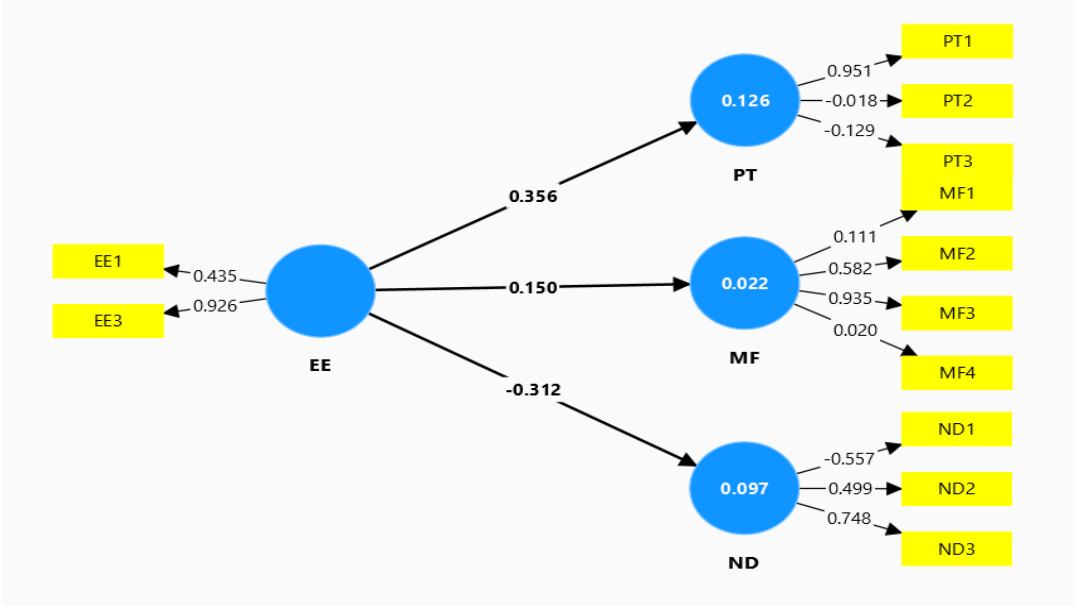

Figure 1: Smart PLS Algorithm

The above model in the Figure 1 represents that smart PLS Algorithm model in between effectiveness of physical therapy in improving motor function in children with neurological disorders. The effectiveness shows that 0.435, 0.926 both factors shows that positive and significant values between them. the EE shows 35% positive link with PT also that its shows 13% and 31% significant relation with MF and ND as respectively. According to the model result shows that 95%, 1%, 11%, 58%, 93%, 2% also that 49% significant relation between them.

4. Descriptive Statistic

Table 1: Result of Descriptive Statistic

NAME	NO.	MEAN	MEDIAN	SCALE MIN	SCALE MAX	STANDARD DEVIATION	EXCESS KURTOSIS	SKEWNESS	CRAMÉR-VON MISES P VALUE
EE1	1	1.400	1.000	1.000	3.000	0.600	0.623	1.260	0.000
EE2	2	1.280	1.000	1.000	2.000	0.449	-1.021	1.011	0.000
EE3	3	1.640	2.000	1.000	3.000	0.625	-0.609	0.458	0.000
PT1	4	1.540	1.000	1.000	3.000	0.639	-0.361	0.794	0.000
PT2	5	1.480	1.000	1.000	3.000	0.640	-0.009	1.021	0.000
PT3	6	1.680	2.000	1.000	3.000	0.676	-0.744	0.507	0.000
MF1	7	1.460	1.000	1.000	3.000	0.607	0.017	0.988	0.000
MF2	8	1.580	2.000	1.000	3.000	0.635	-0.507	0.654	0.000
MF3	9	1.520	1.000	1.000	3.000	0.640	-0.262	0.867	0.000
MF4	10	1.680	2.000	1.000	3.000	0.705	-0.833	0.560	0.000
ND1	11	1.540	1.000	1.000	3.000	0.607	-0.453	0.672	0.000
ND2	12	1.520	1.000	1.000	3.000	0.640	-0.262	0.867	0.000
ND3	13	1.560	2.000	1.000	3.000	0.605	-0.522	0.599	0.000

The above result in the Table 1 demonstrate that descriptive statistical analysis result represents the mean values, the median values, minimum rates, maximum value also that explain the standard deviation rates of each variable. the EE1,2,3, this is called effectiveness result shows that its mean values are 1.400, 1.280, 1.640 the standard deviation rate is 60%, 44% and 62% deviate from mean. The result also describes that skewness value its rate is 1.260, 1.011 and 0.458 result shows that positive skewness value of effectiveness. The PT1,2, and 3 is mediator variable result describe that its mean value is 1.540, 1.480 and 1.680 result shows that positive average value of mean the standard deviation rate is 63%, 64% and 67% deviate from mean values. According to the result overall probability value is 0.000 shows that 100% significant rate between them. the MF1,2,3, and 4 shows that mean value is 1.580, 1.520, 1.680 all of them are present that positive average value the standard deviation value is 60%, 64% and 70% deviate from mean. The ND1,2,3 stand for neurological disorders result shows that its mean value is 1.540, 1.520 and 1.560 its present positive average value of mean rates.

5. Correlation Coefficient

Table 2: Result of Correlation Coefficient

	EE1	EE2	EE3	PT1	PT2	PT3	MF1	MF2	MF3	MF4	ND1	ND2	ND3
EE1	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EE2	-0.045	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EE3	0.064	-0.354	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PT1	0.167	-0.109	0.287	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PT2	0.125	0.159	-0.018	-0.145	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PT3	0.069	0.163	-0.131	0.168	-0.107	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MF1	0.044	0.041	0.015	-0.228	0.255	-0.129	1.000	0.000	0.000	0.000	0.000	0.000	0.000
MF2	0.231	0.062	-0.028	0.362	0.102	0.106	-0.070	1.000	0.000	0.000	0.000	0.000	0.000
MF3	-0.021	-0.159	0.168	0.047	-0.121	-0.262	-0.049	0.340	1.000	0.000	0.000	0.000	0.000
MF4	0.019	-0.096	-0.034	0.339	0.119	0.246	-0.030	0.325	0.058	1.000	0.000	0.000	0.000
ND1	0.176	-0.041	0.091	-0.030	-0.101	-0.212	-0.403	-0.034	0.204	0.077	1.000	0.000	0.000
ND2	0.083	-0.159	-0.182	0.047	0.074	-0.078	0.054	0.193	0.170	0.014	-0.311	1.000	0.000
ND3	-0.066	0.085	-0.260	-0.006	0.081	-0.197	-0.157	-0.012	-0.029	-0.096	-0.007	-0.029	1.000

The above result in the Table 2 demonstrates that correlation coefficient analysis overall results present negative also that some positive correlation link between the one variable to another variable. The trials' outcome measures differed significantly from one another. Out of the 53 distinct outcome measures, only eight were employed in several trials.

With the exception of the GMFM and the PEDI, many of the measures that are utilised have not been demonstrated to be sensitive in identifying functional change over time in children with cerebral palsy. To establish a core set of outcome measures for follow-up studies in physical therapy treatments, international standards are required. According to ICF, the majority of outcome measures measured motor activities as well as different bodily tissues and functions. One cannot extrapolate the results to include participation since the activity measures' included participation elements differ in degree. Contextual variables and quality of life were assessed in very few experiments. We propose that measurements might also be made of the children's general subjective well-being and environmental conditions.

6. Discussion

Finding every available RCT was not the goal of this review. Beginning in 1990, we limited our search to databases that were most likely to include the pertinent documents. Therefore, if the articles were only available through, say, Embase, we could have missed them. We did broaden our search outside English-language publications, but due to our low proficiency in the language, we were unable to determine whether three research would have met our inclusion requirements. Every trial that was included was written in English. Publication bias may occur from relevant research with conflicting or unfavorable findings going unreported. 22 RCTs on physical therapy therapies for children with cerebral palsy were examined in this systematic review. Except for one, every item was released after 1990. Previous reviews have examined six of these. There were eight distinct intervention types identified. Comparisons in the evidence synthesis are limited since the population, treatments, and outcomes varied across all categories. When at least one high-quality research or consistent results from many lower-quality studies supported the effectiveness, the evidence was deemed moderate. Two intervention categories were shown to have somewhat beneficial effects on a few functional outcomes.

First, two studies added to the modest body of data for therapies for the upper extremities. When OT was used instead of no therapy, one experiment showed improved active supination and the achievement of personalized objectives for a variety of tasks. This result, which was derived from a single trial, is comparable to results showing that NDT enhanced dynamic range of motion right away. In a different experiment, children's developmental status was enhanced by prehensile hand therapy with NDT or NDT administered twice a week as opposed to once a week. Second, when compared to traditional therapy, constraint-induced therapy produced improved functional use of the spastic upper extremity. A recent Cochrane study reached similar findings. Additionally, there was minimal evidence that strength training had no effect on

stride length when compared to no training based on two trials or on self-selected walking speed based on four trials. There is conflicting information about the impact of strength training vs no training on gross motor function as evaluated by GMFM. A prior study examined the effects of a few observational studies on walking speed and gross motor function, finding that they were both positive and conflicting. The remaining outcomes assessed in the trials of strength training, constraint-induced therapy, and upper extremity therapies had little supporting data. There was only one RCT on the efficacy of any measurable outcome for any of the other five intervention groups (sensorimotor training, balance training, cardiovascular fitness and aerobic programs, complete physical therapy, and animal therapy). The methodological quality was generally rather poor.

There were just four high-quality trials. Lack of information or flaws in the randomization process, group allocation concealment, baseline similarity, number of dropouts, or reporting of co-interventions might have led to bias in the majority of other studies. Additionally, several trials did not disclose whether the outcome assessors were blinded or if the intervention was followed. Naturally, this may just be the result of the previously mentioned subpar reporting. A third of the trials showed group differences in the baseline parameters, which might lead to further bias. We included children with CP of various ages (7 months to 18 years), as well as all CP kinds and severity levels. We depended on the diagnosis as described by the authors. It appears that the diagnosis of cerebral palsy was accurate because none of the included trials indicated a substantial improvement in motor function or the elimination of symptoms suggestive of the condition. In certain trials, stratification effectively addressed the heterogeneity. Heterogeneity is a significant obstacle in both research and clinical practice when attempting to apply the findings to children with cerebral palsy. The goals of an older non-ambulant kid with a particular learning disability are quite different from those of a toddler with hemiplegia. Before using the data in a clinical setting, it is crucial to thoroughly examine the inclusion criteria for each study. No two of the interventions were alike. The majority of studies gave a good description of the therapies as previously published.

The thorough intervention descriptions made it possible to identify each study's active ingredients, which aided in their classification. However, for the majority of the studies, the co-interventions were not entirely obvious. In several trials, children remained receiving their regular therapy, the nature and extent of which were not specified. Thus, the results could have been muddled by these supplemental treatments. Children's functional skills may be impacted by environmental influences, including home and leisure activities, and parental support. To ensure that bias can be assessed, these should be documented and reported in a same manner for each intervention group.

7. Conclusion

This systematic evaluation of research on children with cerebral palsy offers some moderate, but generally restricted, information regarding the effectiveness of the various PT therapy. Despite the categorization, no exactly the same intervention was studied in several trials, therefore clinical conclusions can only be drawn from a single study. It is necessary to conduct well-designed, randomized studies on specific and current PT programs in addition to developing new methods for evaluating the effects of comprehensive PT therapy. Every child in our study was enrolled in an adequate physical therapy program, which establishes age-appropriate standards to examine how physical therapy affects motor development. It also aimed to raise awareness among the children's caretakers by demonstrating the disparities in motor development between children with DS who received early PT support and those who did not. The inclusion of children with DS in the reliability test further supported the Bayley III's usefulness in evaluating their skills. The Bayley III standardization study included 90 DS children, aged 5 to 42 months, with the same demographics. The mean motor composite score of 62.3 for the children with DS was much lower than the mean score of 102.3 for the control group. In the standardization trial, the subgroup in our study that started physical treatment before the age of one had a motor composite score that was 10 points higher than the DS group, whereas the group that started physical therapy after the age of one had a score that was 7 points lower. Furthermore, we found that compared to the cohort that started physical treatment after the age of one, the grouping that started physical therapy prior to that age had significantly higher GM-SS, FM-SS, and motor composite scores. These results suggest that starting a physical therapy program before the age of one is more beneficial. CHD, one of the disorders that may affect motor development, was present in 41–56% of children with DS.

There was no appreciable difference in the related CHD between the groups receiving physical therapy and those not receiving it, and the frequency of CHD in our study was similar to that reported in the literature. Our study was constrained by the fact that it was conducted at only one site and the sample size was still very small, even if it contained more occurrences than previous research. Research is required to determine if physical treatment given to children with Down syndrome before the age of one is effective. These investigations have to be conducted with a longer follow-up time, on a larger number of patients, and in more centres that employ conventional therapy. Our research indicates that children with DS benefit from physical therapy by developing their gross and fine motor skills. Notably, the development of gross and fine motor abilities is further positively impacted by starting physical therapy before the age of one. Establishing health services that enable children with DS to begin physical therapy at an early age is crucial. To avoid delaying medicines,

clinicians' sensitivity should also be increased. The results of our study have provided a scientific rationale for health care providers to send children with Down syndrome and their families to physical therapy programs as soon as feasible, especially before the child is one year old.

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