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Advances in Pediatrics Research

Research Article

Physiotherapy Approaches for Motor Proficiency in Children with Down Syndrome: A Systematic Review of Systematic Reviews and A Meta-Analysis

Shimaa Mohamed Reffat*, Faten Hassan Abdelaziem

Department of Physical Therapy, Cairo University, Giza, Egypt

ABSTRACT

Objective: Children with Down Syndrome (DS) experiences global neuromotor retardation and developmental delay. Various treatment methods had been used in rehabilitation procedures in regardless its effectiveness in facing specific problem. Thus, this systematic review of systematic reviews and meta-analysis done on almost several modalities of physiotherapy used to improve motor proficiency; provide evidence regarding the effectiveness of physiotherapy approaches for specific outcomes related to motor skills and capability for children with DS.

Design: A systematic review of systematic reviews and a meta-analysis.

Participants: Children with DS.

Interventions: Physiotherapy interventions included in the systematic reviews such as treadmill training, progressive resistive exercises, virtual reality, neuromuscular and whole-body vibration training.

Outcome measures: Outcome measures that involved in the systematic reviews include the following: Muscular fitness (strength and endurance), balance, cardiovascular fitness, body composition and locomotor skills.

Methods: Database searching for systematic reviews of physiotherapy approaches for DS were individually done by two independent reviewers through Google Scholar, Scopus Medline, Pub-Med and PEDro from inception till May 2022 for collecting the most relevant systematic reviews without language restrictions. A meta-analysis was conducted using RevMan software (V5.4).

Setting: 12 systematic reviews with total 117 RCT included.

Results: Overall twelve of systematic reviews, evaluated for eligibility and involved in the review after considering the guidelines of extension statement for reporting systematic reviews. The finding of each systematic review was scheduled according to the evidence level and the results classified with the international classification of function, disabilities and health. Methodological quality assessment was done by modified Revised Measurement Tool to Assess Systematic Reviews (R-AMSTAR) scoring system.

Conclusions: A conclusive interpretation was reached on the most effective physical intervention that relates to a specific outcome that could be beneficial in making decision process in the management of children with Down syndrome and was supported with an evidence-based approach.

Keywords: Physiotherapy; Motor proficiency; Down syndrome; Trisomy 21; Neuromotor retardation

INTRODUCTION

Down Syndrome (DS) is a chromosomal abnormality because of one from three abnormal chromosomes: Trisomy 21 (more common), translocation and/or mosaicism. This chromosomal alteration occurs during fetal development, more precisely during cell division and will characterize the signs and symptoms of the syndrome [1,2]. In the United States, 1 in 732 live infants is affected. It considered the best-known inherited cause of cognitive dysfunction with child-development delay. People with DS have experienced a range annual increase of 0.94 years in life expectancy above the past 50 years, with a range life expectancy of 60 years, according to recent studies. People with DS can live as the population, following life expectancy trends [3].

The baseline features of DS are neuromotor retardation, generalized hypotonia and ligament laxity, resulting in a two-year average walking capacity and impaired cognitive function.

Correspondence to: Shimaa Mohamed Reffat, Department of Physical Therapy, Cairo University, Egypt, E-mail: Shimaa_dpt@cu.edu.eg

Received: 15-Nov-2023, Manuscript No. LDAPR-23-28030; **Editor assigned:** 17-Nov-2023, PreQC No. LDAPR-23-28030 (PQ); **Reviewed:** 04-Dec-2023, QC No. LDAPR-23-28030; **Revised:** 11-Dec-2023, Manuscript No. LDAPR-23-28030 (R); **Published:** 18-Dec-2023, DOI: 10.35248/2385-4529.23.10.066

Citation: Reffat SM, Abdelaziem FH (2023) Physiotherapy Approaches for Motor Proficiency in Children with Down Syndrome: A Systematic Review of Systematic Reviews and A Meta-Analysis. Adv Pediatr Res. 10:066.

Movement disorders causes an abnormal postural control, leading to unsteady, disordered walking, as well as more energy loss and decreased activity [4,5].

As people with DS live longer, it is more important than ever assess the effect of living with people with disabilities, as well as the areas that could be improved to improve participation. It can affect an individual's daily activities and social participation. Exercise and exercise therapies have been extensively explored for people, involving obesity, cardio-vascular disease, oncology, with good evidence to support benefit support [6,7].

According to research, exercise intervention has also been shown to improve cardio-vascular health, muscular strength and endurance, reduce body fat percentage in people with DS. However, not appropriately detecting which physical intervention is more effective in dealing with specific problem than other [8].

Physiological and psychological functions of body systems are defined as bodily functions; body structure covers all physical aspects of body. An activity of individuals is defined as an action or task that he performs. The term "participation" means "participation in anything". Participation in a life/social context is defined as participation. Rather than focusing solely on impairment, the International Classification of Functioning (ICF), Disability and Health model places more emphasis on an individual's overall health. This model can be used as a reference for systematically comparing results across surveys. Therefore, the ICF model can be used to categorize research that focusses on positive effects of physical activity and exercise interventions on motor performance in children with DS, few systematic reviews had examined the effects of interventions on various outcomes [9-11]. For our knowledge, there was not a meta-analysis previously done on this topic.

Therefore, the main objective of the study is to systematically review of systematic reviews that concerned with physical therapy modalities appropriately achieving improvement in various motor outcomes in children with DS and which of them had more effectiveness on specific outcome than other.

MATERIALS AND METHODS

Eligibility criterion

Guidelines of Preferred Reporting Items for Systematic Review and Metanalysis (PRISMA) were followed in reporting this systematic review and meta-analysis [12]. A review research question, explicitly specify searching strategies criteria involving study selection-inclusion and conduct an organized literature search to be included in this analysis. Cohort, cross-sectional studies and case-control were removed as alternative of study design or publication types were eliminated. Language restrictions in study selection. Studies that were not published in English were rejected. There was a protocol developed before starting this paper but not published yet.

This review examined all studies of systematic reviews that address diverse modes of physiotherapy effectiveness on the population with DS. Dysfunction in postural control, as well as problems with motor coordination, impaired sensorimotor integration and the fact that patients need time to adapt to new situations are all commonly reported in children with DS. Table 1 shows how each included systematic review described participant characteristics. Population similarity of the involved studies was assessed using inclusion and exclusion criteria.

Table 1: Participants' inclusion/exclusion criteria.

Criteria for inclusion	(1) 18 years or younger children with DS, and (2) A motor impairment was presented were included
Criteria for exclusion	Subject with (1) post-operative Musculo-skeletal structures involving bone, ligaments, and/or nerves, (2) Musculoskeletal dislocation and/or fracture in lower limb requiring reconstruction.

Note: DS: Down Syndrome.

Searching sources

Screening of abstracts and full text reviews was conducted independently. The principal investigator Reffat performed a systematic searching on Google Scholar, Scopus, Medline, Pub-Med and PEDro through June 2021, reviewed by the second author Abdelaziem. Search terms include database-specific topic categories, as well as free text terms such as systematic review, meta-analysis, down syndrome and physical approaches were involved. Third individual was participated as independent reviewer. Table 2 shows the PubMed and Google Scholar search strategies.

Table 2: PubMed and Google Scholar searching strategy.

1	(MSH "Meta-Analysis") AND / OR ((MSH "Review") AND (MSH "Meta-Analysis as Topic") OR systematic review OR meta-analysis)
2	((MSH "Down) AND (MSH "Down syndrome") AND/ OR (MSH "Trisomy 21") OR Genetic Disorder * OR Development delay)
3	((MSH "Postural control") AND (MSH "Strength") OR (MSH "Endurance")
4	((MSH " therapy approaches) AND (MSH "Physical modalities") AND/OR (MSH "physical activities")
5	1 AND 2 AND 3 AND 4 AND

Note: MSH: Medical Subject Headings.

Studies' selection

All publications found through a database search were individually evaluated by two reviewers Reffat and Abdelaziem. The titles of the articles were evaluated for study eligibility. The same criteria were used to evaluate abstracts recognized according to the title. The whole texts evaluated to see if they could be used in a meta-analysis. Other relevant systematically reviews were found by manually searching the reference lists.

Data collection

Each systematic review was independently extracted its data by two reviewers Reffat and Abdelaziem. When the missing data was found, the relevant author was contacted and searched for the data. Total R-AMSTAR score was shown in Table 3 [13,14]. In terms of participant selection/enrolment and procedures, similarity of the involved studies was evaluated. Author, publication year, outcome variables and methods of measurement, inclusion criteria, number of participants included were collected from each systematic review for inclusion in the research.

Table 3: Criteria of R-AMSTAR.

S.No.	Criteria	Score
1	Was a 'previous design' offered?	4
2	There was identical study selection and data extraction?	4
3	Was a widespread literature search performed?	4
4	Was the status of publication (i.e. grey literature) used as an inclusion criterion?	4
5	Was a list of studies (included and excluded) afforded?	4
6	Were the characteristics of the included studies provided?	4
7	Was the scientific quality of the included studies evaluated and recognized?	4
8	Was the scientific quality of the included studies used properly in expressing assumptions?	1
9	Were the methods used to combine the findings of the studies suitable?	4
10	Was the likelihood of publication bias considered?	4
11	Was the conflict of interest embraced?	3
Total score		40

Quality assessment

Validation of assessments with extraction of data was carried out by both assessors Reffat and Abdelaziem. The disagreements were managed through a third professional person to reach a consensus. The validity for systematic reviews evaluation done through the R-AMSTAR (modified version of Revised Measurement Tool for Systemic Review Evaluation). A conclusion for the R-AMSTAR scoring was presented in Table 4. Higher scores indicate better quality and internal validity. Assessment of quality of reviews is ranged from greatest to lessness total scores with percentages (range: A (90%-100%), B (80%-98%), C (70%-79%), D (60%-69%), E (>60%)) [15].

Statistics

Agreement amongst researchers on the eligibility testing was calculated using the agreed kappa score. Subsequently, duplicate studies were removed through using of Mendeley reference manager. Assessment of heterogeneity was done using (I2) and translated as (0%-41%) indicating negligible, (41%-60%) as adequate, (61%-90%) are significantly heterogeneous, cities and 91%-100% are significantly heterogeneous. Subgroup analyzes were performed according to the World Health Organization (WHO) which referred to the ICF model [10,11]. Meta-analysis was performed with Rev-Manager version 5.4 (Copenhagen, Denmark: Nordic Cochrane Centre, Cochrane Collaboration, 2008). Calculation of Standard Mean Difference (SMD) and 95% Confidence Interval (CI) were done.

RESULTS

Selection of studies

Searching the database retrieved 425 potential reviews. Number of systematic reviews were selected, evaluated for suitability and involved in the appraisal after reviewing the PRISMA expansion statement for systematic review reporting, was shown in Figure 1. Twelve systematic reviews as a total of involving 117 studies include publications from 2007 to 2020 were considered in this research. Conclusion on the involved assessments was reached through discussion between both assessors Reffat and Abdelaziem and more consideration got by third evaluator (Figure 1).

Table 4: Scoring of R-AMSTAR; total /rank.

Systematic review	R- AMSTAR items													
	1	2	3	4	5	6	7	8	9	10	11	Total	%	Rank
Li et al, 2013	3	4	4	2	3	4	4	0	4	1	3	32	80%	B
Khondowe et al., 2007	3	4	4	3	2	4	2	1	4	1	2	30	75%	C
Sugimoto et al, 2016	3	1	3	2	1	4	4	1	4	1	3	27	67.50%	D
Damiano and Dejong 2009	3	4	4	4	3	4	4	0	1	2	2	31	77.50%	C
Gudiol et al., 2017	4	4	4	4	3	4	4	0	4	3	2	36	90%	A
Koopman, 2020	4	1	3	1	1	4	3	0	1	1	1	20	50%	E
Espinosa et al., 2020	4	2	3	4	3	4	4	0	3	1	2	30	75%	C
Zago et al., 2020	3	4	3	2	3	4	4	0	1	1	2	25	62.50%	D
Hardee and Fetters, 2017	4	4	4	3	3	4	4	1	1	1	3	32	80%	B
Gonzalez et al., 2019	4	4	4	4	3	4	3	1	4	3	3	37	92.50%	A
Paul et al., 2019	3	3	4	1	4	3	3	1	2	1	4	29	72.50%	C
Maiano et al., 2019	4	3	4	3	4	4	3	1	1	1	3	31	77.50%	C
Average	3.5	3.2	3.6	2.7	2.7	3.9	3.5	0.5	2.5	1.4	2.5	30	75%	C

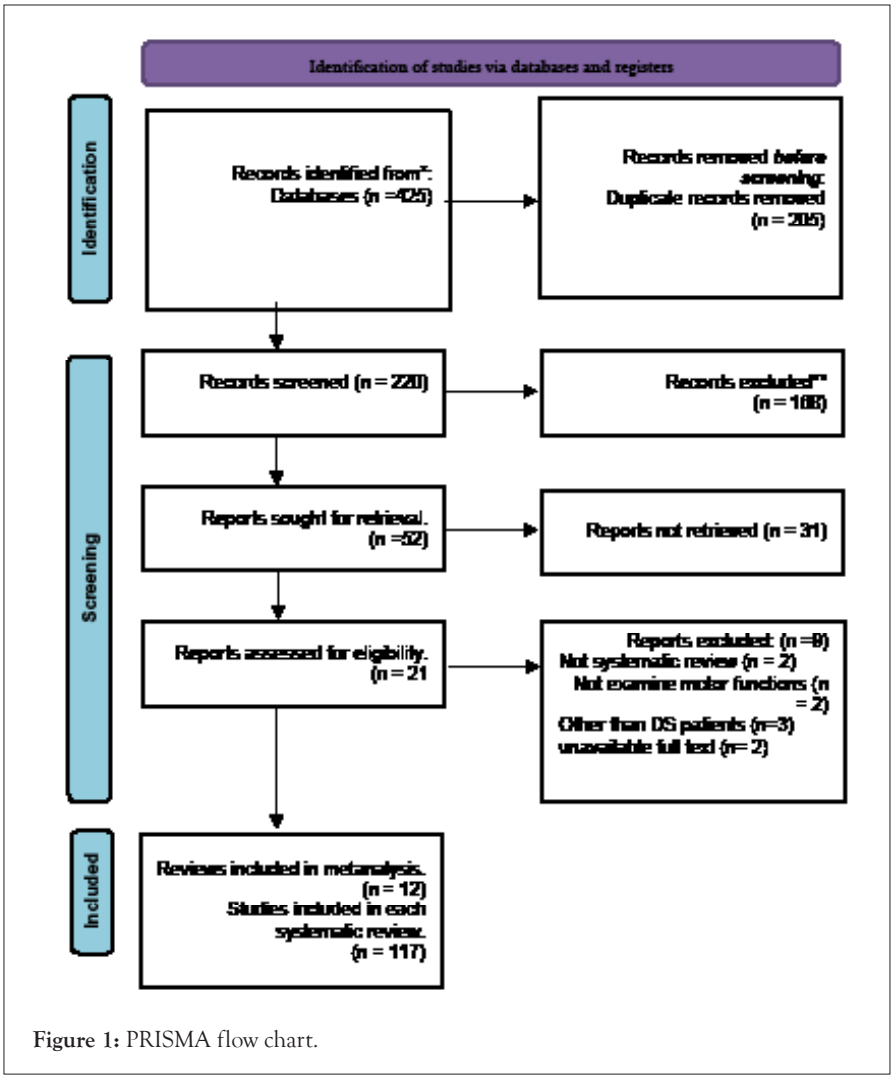

Figure 1: PRISMA flow chart.

Study features

Six systematic reviews evaluate muscle fitness (power and endurance), 6 reviews test dynamic and/or static stability, 4 reviews assessed cardio-vascular health, 3 reviews inspected anthropometrical dimensions and 3 reviews examined location and efficient functioning [16-27]. The causes of exclusion of nine carefully considered systematic reviews considered in the flow diagram as three studies focused only on cerebral palsy children, two had not systematic review, two did not examine motor functions and two did not have a full text version.

Outcome measures

Different consequence methods were used according to the diverse types of interference programs. Most of the reviews evaluated muscle fitness and balance, four studies evaluated cardiovascular capability; three reports on body composition and three studies tested locomotor skills which in terms of classified according to ICF.

Muscle strength /endurance: Six systematic reviews examined the effects of an intervention on muscle power and endurance, with different methods used in each study.

According to Li et al., a bicycle, treadmill, a rowing ergometer intervention and resistance progressive training were employed; the analysis of data demonstrated; physical activities can improve muscular strength. Conflicting results among research may be due to different types of exercise [16].

According to Sugimoto et al., weight machine exercises (resistance training), a 5-minute treadmill activity were employed as weight machine exercises (resistance training). Their findings suggested the neuro-muscular exercise could be an applicable strategy for improving overall maximal muscular force in children with Down disorder [18].

According to Hardee and Fetters, a favorable effect of physiotherapy interference on regular living actions and involvement was demonstrated for children with DS using progressive resistance training [24].

Treadmill training with progressive resistance training was employed by Gonzalez et al., the meta-analytic data on strength levels emphasize the importance of resistance training programs in improving muscle strength in patients with DS [25].

Regular muscular strengthening exercises, such as circuit training, plyometric and swimming, as well as regular resistance training, were used by Paul et al. Daily exercise improves health condition of PWDS by enhancing their aerobic capacity, body composition and muscle power, according to clinical research [26].

In Koopman et al., using a six-week strength and equilibrium guidance plan to study the strength of the lower leg. Exercises with sandbags resistance through hip and knee flexors, hip and knee

extensors, hip abductors and ankle plantar flexors form the main training element of the strength intervention programs. The subject performed 2 groups for ten repetitions at 50% of the Maximum one Repetition (1RM) and the endurance only augmented after children were able to complete the sets comfortably; the net consequences displayed that after a six-week practice program, the Maximum one Repetition (1RM) of the participants had decreased by 10%. Study cluster was stronger than the control group in all muscle strength that was reasonable. Outcomes were statistically significant ($p<0.05$) [21].

Balance: Six systematic evaluations looked at how different exercise regimens affected the result of balance interventions. A treadmill program, particular balance exercise training, with a weight-bearing exercise programmed were used by Lie et al., [16].

Hardee and Fetters used aerobic and strength training, biking and dance.

Study of statistically significant body structure and function measures were shown to have lesser quality than studies with activity and participation measures [24].

Gonzalez et al., employed full-body vibration. The intervention had a beneficial effect on mediolateral oscillations, according to the meta-analysis [25].

Strength and balance workouts, whole-body vibration and Wii Fit balance game training were used by Maiano et al. Findings revealed exercise programs that more affected the study more than the control in improving static-dynamic balance in teens with Down syndrome [27].

BOSU Ball training activities, a dance training program, full body vibration exercise, Computer-generated practicality therapy and Wii rehabilitation were employed by Koopman et al. Participants with Down syndrome achieved much improved stability in each static and dynamic balance tasks when using the BOSU ball. Although the results of dance program do not show any important variations in balance of people who had DS, findings showed that sensory motor integration should help these people with their balance and coordination [21].

The results of the whole-body vibration training study reveal that it is only useful in people who have a problem with their balance. The virtual reality program's results imply to simulated reality therapy as an applicable equipment to enhance stability and movement organization and that it might be as a clinical suggestion for these children. The results of the Wii-Fit Virtual Reality or Wii-habilitation, study demonstrate that virtual reality therapy in the Wii-habilitation, have been used for different types of intervention programs. Most of the studies assessed muscle health and balance, four of which assessed cardiovascular health; three studies on body composition and three studies examined motor skills classified by ICF.

Treadmill training was used by Zago et al. Following a 6-month treadmill training programmed, improvements in dynamic balance function have been reported in older adults with DS [23]. In conjunction with regular physical therapy, it can help people with Down syndrome improve their balance [21].

Treadmill training was employed by Zago et al. After a 6-month treadmill training program, improvements in dynamic balance function were reported in the elderly with DS [23].

Cardiovascular fitness: After four systematic reviews, cardiovascular health status was assessed and maximum measuring of maximal oxygen uptake (VO_2). Lie et al., used a treadmill test and a rowing power meter test. With rowing treadmill training, there was no statistically significant group differences in VO maximum as determined by the treadmill training trial [16].

Aerobic and endurance training, cycling and dancing were used to quantify maximal aerobic capacity (maximum oxygen consumption, heart rate) in the study done by Hardee and Fetters [24]. Results of the metanalysis shown that the presented data by individual studies are not uniform, admitting to Gonzalez et al., maximum VO_2 and highest heart rate with an aerobic exercise-based intervention was found [25].

Research by Paul et al., indicates that daily an aerobic exercise increases the capacity of PWDS, a major contributor to maximal oxygen consumption and therefore needs further confirmation by more randomized controlled trials [26].

Body composition: The impact of exercise intervention for body composition were studied in three systematic reviews. In Lie et al., Cardiovascular training, cycling and endurance interventions doesn't statistically significant effects on body weight, but the combined training programmed (jumping, push-ups, resistance bands) showed a statistically significant difference [16]. Espinosa et al., used a physically training programmed with various aerobic and resistive training to measure anthropometrically measurements as (BMI and body fat) using a micro tomography device. Bod Pod® calculator and Holtain fat meter [22]. According to this review, the processes that cause the greatest change for adolescents are those based on designed physical occupation, with consideration to the intensity, duration, repetitions number, days per week and cycling programmed.

Paul et al., declared that the clinical research used daily regular training exercise improves health level of PWDS by encouraging their aerobic capacity, body composition, muscle strength, cognitive ability and stability of posture. The impact of improved body composition and aerobic capacity contribute to a reduced cardio-vascular disease [26].

Locomotion skills: The impact of physical therapy training techniques on motor skills was studied in three systematic reviews. Independent motor and walking skills (developmental index) were measured using the Bayley Infant Development Scale and edgeways in 10 steps forward and 10 steps forward. Therapies used are integrative sensory processing, vestibular stimulation and neurodevelopmental therapy. The time it takes for adolescents with DS to be able to walk independently is significantly reduced when they receive intensive physical care. In addition, high-intensity physical therapy significantly improved the overall growth index that it was investigated also by Sugimoto et al. [17,18].

Gudiol et al., used Gross Motor Function Measure (GMFM), Bayley Scales of Infant and Toddler Development (BSITD), Peabody Developmental Motor Scales, Second Edition (PDMS-2) and motion analysis systems to test an onset of independent walking and motor skills using treadmill intervention. The meta-analysis found no statistical significance difference between both intervention group as in independent toddler. Other gait measurements, as stride breadth and stride length did not differ between higher intensity and lower intensity treadmill training intervention group at 12-month follow-up evaluation [20].

The systematic review methodological quality was not an important

judge of the overall effect of implication. The results were found comparable concerned with the same outcome measures in four studies of structured reviews, therefore; a meta-analysis of these primary studies was performed. The results of the rest systematic reviews therefore have been qualitatively summarized. Meta-analysis was carried out in Rev-Manager form 5.0. The Standard Mean Difference (SMD) and the 95% Confidence Interval (CI) were calculated. A summary of the meta-analysis for four studies included, with respective to PIs and 95% CIs, that provided to the outcome of locomotor development skills as shown in Figure 2 and Table 5. The result of metanalysis, found that there was no significant effect between neurodevelopmental technique and neuromuscular training on the locomotor developmental skills in children with DS (Figure 2, Table 5) [28-31].

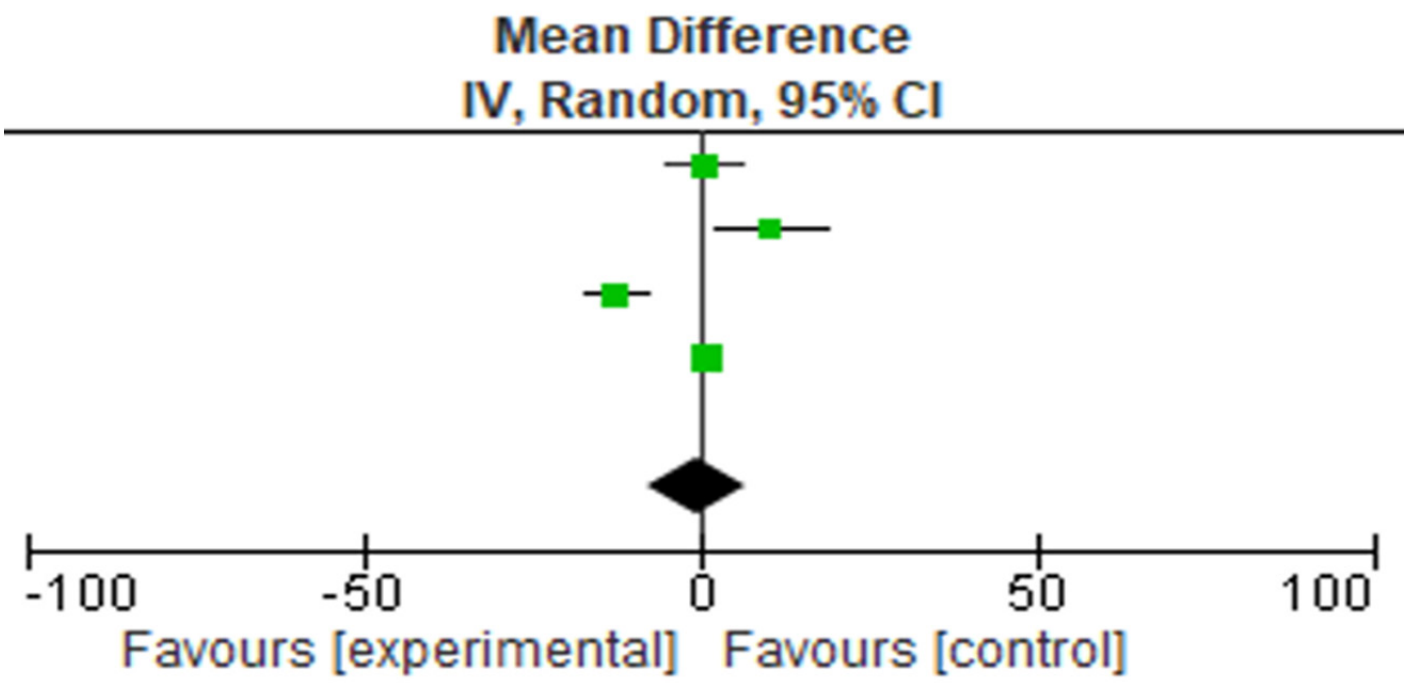

Figure 2: Forest plot for locomotor developmental skills.

Table 5: Summary of meta-analysis performed to study the locomotor developmental skills.

	Experimental			Control			Mean difference	3
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI
Angulo-Barroso, 2013	70.8	5.5	15	70.2	8.8	13	24.70%	0.60 [-4.93, 6.13]
Giudice et al, 2006	2	20.1	24	-8.56	4	23	21.00%	10.56 [2.35, 18.77]
Piper and Pless, 1980	-7.33	7	21	5	8	16	25.50%	-12.33 [-17.26, -7.40]
Uyanik et al., 2003	1.73	0.96	15	0.6	0.83	15	28.90%	1.13 [0.49, 1.77]
Total (95% CI)		75			67	100.00%	-0.45 [-7.59, 6.69]	3

Note: Heterogeneity: Tau^2: 45.82; Chi^2: 33.43; df: 3($p<0.00001$); I^2: 91%; Test for overall effect: Z: 0.12 ($p=0.90$).

DISCUSSION

This meta-analysis investigated the consequence of therapy modalities on developmental outcomes in adolescents with DS. Twelve studies used different interventions. The motor outcomes were (a) muscle strength/ endurance, (b) balance, (c) cardio-vascular fitness, (d) body composition and (e) locomotor skills. Specifically, six systematic reviews showed significant effects (d=0.50 to 1.30) of muscle strength physical training that used a combination of both cardio and strengthen training, a both of resistance and balance training, with a mixed of treadmill gait training and game exercise (virtual reality therapy) [16,18,21,24-26].

The systematic reviews methodological quality was graded performing the modified a R-AMSTAR scale. Internal validity evaluation of involved reviews revealed that two reviews [20,25] were graded A and two were graded B [16,24], 5 studies ranked on scale C [17,19,22,26,27], 2 studies ranked on scale D [18,23]; and one is classified as grade E [21]. Systematic review methodological quality results indicated moderate quality based on evidence.

The ICF model can be used to provide a framework for systematically comparing research results across surveys [9,10]. Consequently, the finding outcomes assessed by ICF model; body structure and function examined at nine studies and tested activity and participation in five studies.

Other results showed an encouragement in upper extremity endurance, but no significant effect on lower extremity endurance. The low exercise status noticed in children with DS (eg, impaired gait kinematics, kinematics) that could be due to an ineffective intervention program for lower extremity endurance. Neuromuscular training for children and adolescents with DS, may be an effective strategy to enhance overall peak muscle fitness and engage in better physical adaptation, as their motor skills improve, leading to a more active lifestyle [32,33].

Resistance training interventions are useful for improving upper and lower limb strength; In addition, vibrational therapy interventions have a beneficial effect on balance, especially reducing the mid-center imbalance during independent walking [34].

These data imply that physical therapy is beneficial in improving strength and balance. The meta-analysis results suggest that training exercise can enhance muscle fitness. Inconsistency of results between reviews may be due to various exercise regimens. Cardio-vascular exercises are significant for enhancing maximal cardio-vascular fitness [35,36]. Consequence of aerobic training for maximum absorption of VO_2 in children with DS is inconsistent. The length of an aerobic exercises in studies could have contributed to these inconsistent results. the results of study suggest longer exercise time could be used to enhance aerobic capacity of DS children [37,38].

According to this review, aerobic exercise has been widely performed to alter the cardio-metabolic index of a Persons with Disabilities (PWDs). Although people with DS are typically mild to mildly obese, three of the 12 studies involved assessments of a body composition. Therefore, it is advisable to increase the repetition and time of interventions for refining their body configuration relative to the population [39]. Increased diversity in body composition should help mitigate the negative effects of obesity and overweight, leading to lower health care costs [40].

Following a meta-analysis carried out for four studies involving motor development skills, there were no significant effects of treadmill intervention on walking independence in these children [41]. In pediatric rehabilitation, the status of evidence for weight-supported treadmill exercise varies by demographic [42]. According to the results of this analysis (two main outcomes; personalized higher intensity treadmill training and universal lower intensity treadmill training) had the same effects on initiation of independent walking. To reinforce the results and promote motor performance in Down syndrome children, experts' advice that exercise programmers be intensive and involve parental involvement [43].

CONCLUSION

According to the research results, the intervention programs were more successful and effective in improving motor proficiencies and performance in adolescents with DS. However, for cardiovascular health and body composition outcomes were contradictory affecting motor function but could be affecting quality of life and social participation. Ultimately, the results suggest that the best interventions when considering muscle status (strength and endurance) outcomes for the management of children with DS; the treadmill training and progressive resistance training is the correct choice, while using the whole-body vibration and virtual reality are considered effective interventions for balanced outcomes. Also, it was found that the treadmill training with an aerobic exercise as a strength training are effective interventions for cardiovascular exercise outcomes, while for locomotor independent skills outcomes; techniques of neurodevelopmental, sensorimotor integrated therapy and low-intensity treadmill training were established to be the best choice for intervention. The consequences of this meta-analysis provide an evidence-based model that clinical physical therapists could use when working with children with DS.

LIMITATIONS

This study was limited by excluding articles from non-english journals, which could exclude potential studies that met the inclusion criteria. In addition, a great variation in the outcome measures, especially the stability measures. In addition, the ages of the participants in the studies studied varied significantly, from less than 10 to 18 years old. Finally, other issues need to be studied further, such as the safety of long-term treadmill use for people at risk of short-term joint deformities such as hip fractures and dislocations. or the risk of osteoarthritis in young people.

CONFLICT OF INTEREST

All authors have no conflict of interest to disclose.

AVAILABILITY OF DATA AND MATERIALS

Applicable.

FUNDING SOURCE

Not applicable.

AUTHORSHIP CONTRIBUTOR STATEMENT

S R designed the study, collected, analyzed the data, contributed to the writing of the initial draft and revised the text draught. F A Conceptualized the study, provided direction assistance and

contributed to the writing and critical review of the manuscript. All named authors approved the final manuscript as submitted.

ETHICAL APPROVAL

This review and meta-analysis did not require ethical approval because personal information of the participants was not included.

DECLARATION OF COMPETING INTEREST

The authors have no competing interests to declare relevant to the content of this article.

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