
Role of Sports Recreation to Develop Motor Skills for Children with Disabilities

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ABSTRACT

Background: Sports recreation plays an important role in promoting the physical and motor development of children with disabilities. Developing basic motor skills at an early age is particularly important because these skills support children's physical independence and participation in recreational and educational activities. Therefore, this study aimed to investigate the role of sports recreation in developing the motor skills of children with disabilities through a proposed recreational program.

Methods: The study employed an experimental method using a pre-test and post-test experimental design. A purposive sample of 30 children with disabilities was selected. Of these, 6 children participated in the pilot study to establish the validity and reliability of the motor skill tests, while 14 children constituted the experimental group. The proposed sports recreation program was implemented to develop the participants basic motor skills, and their performance was assessed before and after the intervention.

Results: The results showed statistically significant differences between the pre-test and post-test scores across all motor skill tests, with the differences favoring the post-test. These findings indicate that the proposed sports recreation program was effective in improving the basic motor skills of children with disabilities.

Conclusions: The study concluded that the proposed sports recreation program effectively develops basic motor skills among children with disabilities. It is recommended that sports recreation programs be implemented in schools and care centers for children with disabilities to support their motor development. Greater attention should also be given to developing basic motor skills during the early stages of childhood.

Keywords: Sports Recreation; Motor Skills; Children with Disabilities.

INTRODUCTION

Children with disabilities represent one of the groups that receive increasing attention at the international and local levels, due to their inherent right to equal opportunities for growth, learning and community participation (Le Fanu et al., 2022; Rioux & Pinto, 2010). Attention to this group is no longer limited to providing health or educational care only, but has extended to include providing sports and recreational programs that contribute to improving their quality of life and developing their physical, motor, psychological and social abilities, in line with the principles of inclusion and equality emphasized by international conventions, foremost among them the Convention on the Rights of Persons with Disabilities (Le Fanu et al., 2022; Rioux & Pinto, 2010). Regular participation in physical and recreational activities is one of the most important means that help children with disabilities reach their maximum functional, motor and social potential (Carbone et al., 2021; Feitosa et al., 2017; te Velde et al., 2018).

Gallahue (2003) indicated that childhood is one of the most important developmental stages in personality formation and the acquisition of basic skills. This stage witnesses high rates of neurological, muscular, and motor development. Specialists in the field of motor development

emphasize that acquiring basic motor skills during the early years of life is the cornerstone for learning more complex athletic skills in later stages. It also contributes to enhancing self-confidence, independence, and the ability to interact with the surrounding environment. Children with disabilities often face delays in acquiring these skills due to functional limitations or limited opportunities to participate in appropriate motor activities (Alghamdi, 2026; Wickman et al., 2018). This necessitates the development of specialized programs that take into account their needs and capabilities (Gallahue 2003: 17).

And each of them mentioned Mohammed Al-Hamahmi and Aida Abdul Aziz (2007) state that recreational sports are an important applied field in physical education. They involve engaging in physical activities and organized games during leisure time to achieve enjoyment and relaxation, while simultaneously contributing to development of the individual's physical, mental, psychological, and social aspects. The importance of recreational sports is amplified for children with disabilities, as it provides a safe and stimulating learning environment that helps them move freely, gradually acquire motor skills, reduce feelings of isolation and withdrawal, it fosters a spirit of cooperation and belonging through group participation in recreational activities (Kläusler & Rutz, 2016; Wind et al., 2004). Recreational programs designed according to characteristics of children with disabilities achieve a clear improvement in their motor performance and adaptive behavior (Al-Hamahmi, Abdul Aziz, 2007: 27).

Khairiya Al-Sukari, Wasila Mahran, and Fatima Abdul Rahman (2008) stated that basic motor skills include locomotion skills, such as walking, running, jumping, and hopping, and control and grasping skills, such as throwing, catching, kicking, and rolling, in addition to balance and motor coordination skills. All of these represent the foundation upon which various sports and life activities are built. The low level of these skills in children with disabilities directly affects their ability to be self-reliant, integrate with their peers, and participate in daily activities, which makes developing these skills a primary goal of sports and recreational programs directed at this group. (Al-Sukari, 2008: 89)

Amira Amal Mohamed Abdel Rahman (2025) indicated that recreational sports programs that rely on small games, group activities, and modified motor exercises lead to improved balance, coordination, agility, and motor control, in addition to the positive effects they have on psychological and social aspects of children with disabilities. This is because recreational sports create enjoyable learning situations that encourage the child to repeat motor performance without feeling bored or pressured, which contributes to rapid learning and mastery of motor skills, element of excitement and play increases children's motivation to participate and continue in the recreational program. (Abdel Rahman, 2025: 56)

Despite remarkable progress in the field of adapted physical education, many educational institutions and centers for the care of children with disabilities still need recreational programs based on scientific principles that aim to develop basic motor skills in an organized manner, taking into account the characteristics of each category of disability. Hence the importance of conducting this study, as it seeks to identify the role of sports recreation in developing the motor skills of children with disabilities, in order to contribute to providing scientific evidence that can be used when designing recreational programs directed at this group, and to enhance the quality of services provided to them in a way that achieves the goals of inclusion and comprehensive development.

Childhood is one of the most important age stages during which basic motor skills are formed. Physical neurological, psychological and social development of the child depends to a large extent on the diverse motor experiences he acquires during this stage. Basic motor skills, such as walking, running, jumping, hopping, balancing, throwing and catching, represent the foundation upon which various subsequent sports and life activities are built, and they also contribute to enhancing child's independence and ability to interact positively with surrounding environment.

Children with disabilities face many challenges that affect their level of motor development, as a result of functional deficit associated with disability, in addition to low

opportunities to participate in physical and recreational activities appropriate to their abilities, which may lead to poor neuromuscular coordination, a low level of balance, and a delay in acquiring basic motor skills compared to their peers. This has been reflected in their ability to be self-reliant and participate effectively in school and social activities.

Sports recreation is one of fields that has proven effective in developing the physical, motor, and psychological abilities of children with disabilities. It relies on exciting and motivating motor activities and games that take into account individual differences and the capabilities of children, which contributes to improving the level of motor performance, developing social interaction, increasing self-confidence, and reducing manifestations of isolation and introversion. Organized recreational programs also represent one of effective educational means in improving the quality of life for this group. Despite growing interest in field of adapted physical education, many studies indicate that recreational programs implemented within some schools and centre for care of children with disabilities still focus on general recreational aspects, without relying on planned scientific programs that aim to develop basic motor skills systematically, some institutions suffer from limited human and material resources necessary to implement specialized recreational programs, which may negatively affect level of motor development of children.

Through the researcher's review of previous studies and his monitoring of activities provided to children with disabilities, he noticed a clear disparity in the level of basic motor skills among children, in addition to the limited use of planned recreational sports programs to develop those skills. This necessitates the preparation of a recreational sports program based on scientific principles, and identifying its effectiveness in developing motor skills for children with disabilities.

This research aims to identify role of sports recreation in developing motor skills in children with disabilities through: Designing a recreational program to develop motor skills for children with disabilities. Identifying impact of proposed recreational program on motor skills of children with disabilities. Research hypothesis: There are statistically significant differences between pre- and post-test measurements of experimental research sample in motor skills of children with disabilities, in favor of post-test measurement.

METHODS

Research Methodology

The researcher used experimental method as it was suitable for nature of study, and employed an experimental design using pre- and post-testing. Study community includes children with disabilities. The researcher selected a purposive sample of children with disabilities, numbering 30 children, divided into 16 children for pilot study standardization of tests in terms of validity and reliability, 14 children for experimental group, as shown in Table (1).

Table 1. Numerical distribution of sample

Classification	Total sample	Pilot study sample		Experimental group	
		No.	Ratio	No.	Ratio
Children with disabilities	30	16	53.33 %	14	46.67 %

Statistical description of the research sample:

Table 2. Statistical implications of basic factors of sample

Variables	Measurement unit	Mean	Standard deviation	Skewness coefficient	Squamous coefficient
Age	Year	8.62	0.42	0.65	0.69
Height	cm.	133.74	1.02	1.11	0.98
Mass	Kg.	38.95	1.63	0.55	0.71

Table (2) shows homogeneity of sample data in the basic primary measurements, as the values of the skewness coefficient range between (0.55 to 1.11), and this value is close to zero. Squaring coefficient also reached between (0.69 to 0.98), this means that fluctuation of normal curve is considered acceptable and in the average and is not fluctuating up or down, which confirms similarity of sample members in the primary measurements.

Data collection methods and tools

Equipment and tools used in the research: The researcher used a set of devices and tools necessary to implement the sports recreation program and conduct the research measurements and tests, as follows: First: Measuring devices: Restameter is a device for measuring length in centimeters. Electronic medical scale for measuring weight in kilograms. A digital stopwatch for measuring time in running, agility, and balance tests. A metal measuring tape (30) meters long to determine the distances of the tests. A flexible measuring tape for measuring the distance of a wide jump from a standing position. A whistle to regulate the start and end of the tests. Second: Sports equipment: Training cones. Plastic hoops. Sponge balls of different sizes. Small rubber balls. Jump ropes. Low-height training hurdles. Colored floor markers. A low-height balance beam or balance bar drawn on the ground. A foam mat for protection while performing certain activities. Small goal or training goals. Small Bean Bags.

Plastic baskets or boxes for use in shooting games. Second: Tools for implementing recreational program: Recreational game cards. Reinforcement and encouragement cards. Music and action songs suitable for children. Educational posters and pictures for motor skills. Activity instruction cards.

Measurements and tests

The researcher referred to previous studies and scientific references that dealt with study variables and sought opinion of experts on them. Then the researcher arrived at following tests, which are shown in Table (3).

Table 3. Skills Tests

Motor skills tests	Measurement unit
20-meter run test	Sec.
Standing Broad Jump Test	cm.
Hop test (number of times loss of balance)	Number
Static balance test	Sec.
ZigZag test (Agility)	Sec.
Compatibility test (throwing and receiving ball)	Number

Pilot study

Pilot study was conducted on 15/3/2026 on a sample of 16 children outside the main sample, in order to measure validity and reliability.

Scientific procedures for skills tests

Honesty: To find validity coefficient for the tests under investigation, the researcher used the validity of the peripheral comparison. By calculating the average values of the differences between the upper and lower quartiles of the results of the exploratory sample of 16 children, Table (4) illustrates this.

Table 4. Significance of differences between the upper and lower quartiles in determining validity of differentiation

Tests	Measur ement unit	Upper quarters		Lower quarters		Calculat ed (t) value	Sig. level
		Mean	St.d	Mean	St.d		
20-meter run	Sec.	7.10	0.45	9.05	0.60	7.35	0.00

Standing Broad Jump	cm.	84.50	6.80	62.30	7.40	6.25	0.00
Hop test (number of times loss of balance)	No.	2.50	0.76	5.88	1.13	7.02	0.00
Static balance test	Sec.	14.10	2.10	7.60	1.50	7.12	0.00
ZigZag test (Agility)	Sec.	12.90	0.75	16.20	1.05	7.23	0.00
Compatibility test (throwing and receiving the ball)	No.	10.75	1.04	5.88	1.13	8.97	0.00

Value of (t) at a significance level of (0.05) = 3.182

Table above shows that there are significant differences between the upper and lower quartiles in the motor skills tests. The test under investigation showed that the value of (t) ranged between (6.25 : 8.97), which is higher than the tabulated value of (t), indicating the validity of the tests under investigation. Reliability: Reliability coefficient for the tests was found by using the application and reapplication method on the same sample of the pilot study 16 children, where the tests were re-applied again after (7) days from the first application to find the correlation coefficient between the first and second application, as shown in Table (5).

Table 5. Reliability coefficient is determined by finding correlation coefficient between initial application and reapplication in tests under investigation

Tests	Measure ment unit	First application		Second application		(R) value
		Mean	St.d	Mean	St.d	
20-meter run	Sec.	8.18	0.74	8.12	0.71	0.95
Standing Broad Jump	cm.	73.81	8.62	74.19	8.47	0.94
Hop test (number of times loss of balance)	No.	4.31	1.02	4.19	0.98	0.91
Static balance test	Sec.	10.94	2.36	11.06	2.29	0.93
ZigZag test (Agility)	Sec.	14.58	1.21	14.46	1.18	0.96
Compatibility test (throwing and receiving the ball)	No.	8.06	1.46	8.19	1.39	0.92

Tabular value of (r) at a significance level of (0.05) = 0.482

Table (5) shows that there is a statistically significant correlation between the first application and the reapplication in motor skills tests, where the calculated value of (r) ranged between (0.91 : 0.96), which is greater than the tabulated value of (r) at a significance level of 0.05, which indicates the reliability of the tests under investigation.

Proposed recreational program

Overall goal of the program: proposed recreational program aims to develop some basic motor skills in children with disabilities less than 9 years old through a range of recreational activities and games that are appropriate to their characteristics and abilities, thereby contributing to improving their running, jumping, hopping, balance, agility, and motor coordination.

Program building principles: Considering the growth characteristics of children under (9) years old. Consider the type of disability and the children's abilities. progression from easy to difficult. Diversity in recreational activities. Safety and security factors must be taken into consideration. Use a style of suspense and fun. Taking into account the individual differences between children. Use positive reinforcement consistently. Providing tools appropriate to the nature of the activity. Achieving the principle of participation for all children.

Program duration and application time: Program duration: 8 weeks. Number of units per week: 3 units. Total units: 24 training units. Training session duration : 60 minutes

Table 6. Time distribution for training unit

Unit parts	Time
Warm-up	10 minutes
Main part	45 minutes
Conclusion and calming	5 minutes

Recreational Unit Content

First: Warm-up (10 minutes): It includes free walking, light jogging, energizing games, simple stretching exercises, small games using hoops and balls. Second: The main part (45 minutes): It includes: Developing running skills tortoise and hare race, running between cones, relay races, running to collect balls. Developing jumping skills jumping inside hoops, jumping over ropes, jumping between ground marks, jumping over low hurdles. Partridge development partridge inside hoops, partridge races, partridge around cones. Developing balance walking in a straight line, standing on one foot, walking on a balance beam, carrying a ball while walking. Developing agility zigzag running, changing direction, cone races, chase games. Developing coordination throwing and receiving the ball, shooting inside the basket, catching the ball after it bounces, rolling the ball towards a goal. Third: Cooling down (5 minutes): It includes slow walking, breathing exercises, relaxation exercises, light games, reinforcement and encouragement.

Main study

The main study was conducted from 8/4/2026 to 10/6/2026, the researcher will explain this as follows: Pre-measurement: Pre-tests were conducted on April 5 , 2026 , for the variables under study on the research sample of (14) children. Program application: The researcher applied the proposed program to the experimental research group, which consisted of (14) children, during the period from 8/4/2026 to 8/6/2026 , at a rate of three units per week for a period of two months. Post test: test of the variables under study were conducted on sample on 10/6/2026, after (8) weeks of implementing the training program.

Statistical methods

The researcher used following statistical method to process the data using the statistical program (SPSS 23) to find the following: Mean. Squaring coefficient. Standard deviation. T-test. Skewness coefficient. Pearson correlation coefficient.

RESULTS AND DISCUSSION

Presentation and discussion of hypothesis: There are statistically significant differences between the measurements of experimental sample in favor of the post-measurement

Table 7. Significance of differences between pre- and post-test scores for experimental group

Tests	Mea sure men t unit	Pre-measurement		Post-measurement		Calculat ed (t) value	Sig. level
		Mean	St.d	Mean	St.d		
20-meter run	Sec.	8.74	0.86	7.31	0.72	8.19	0.00
Standing Broad Jump	cm.	68.43	9.76	84.57	10.31	9.06	0.00
Hop test (number of times loss of balance)	No.	5.71	1.27	2.93	0.92	8.52	0.00
Static balance test	Sec.	8.36	2.10	14.29	3.08	17.74	0.00
ZigZag test (Agility)	Sec.	15.86	1.43	13.27	1.19	9.41	0.00

Compatibility test (throwing and receiving the ball)	No.	6.29	1.54	10.57	1.91	8.87	0.00
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Value of (t) at a significance level of (0.05) = 2.160

Results of Table (7) and Figure (1) show that there are statistically significant differences between the mean scores of the pre-test and post-test for the experimental group in favor of the mean post-test in the tests (20-meter run test, standing long jump test, hopping test). Static balance test, zigzag run test, coordination test were performed, where the calculated "t" value ranged between (8.19 : 17.74). Hazem Jassim Al-Dosari's study (2021) indicated that the use of an organized recreational program led to a clear development in life and motor skills among children with intellectual disabilities who are capable of learning. Group that implemented recreational program also outperformed group that followed the regular program in post-test measurements.

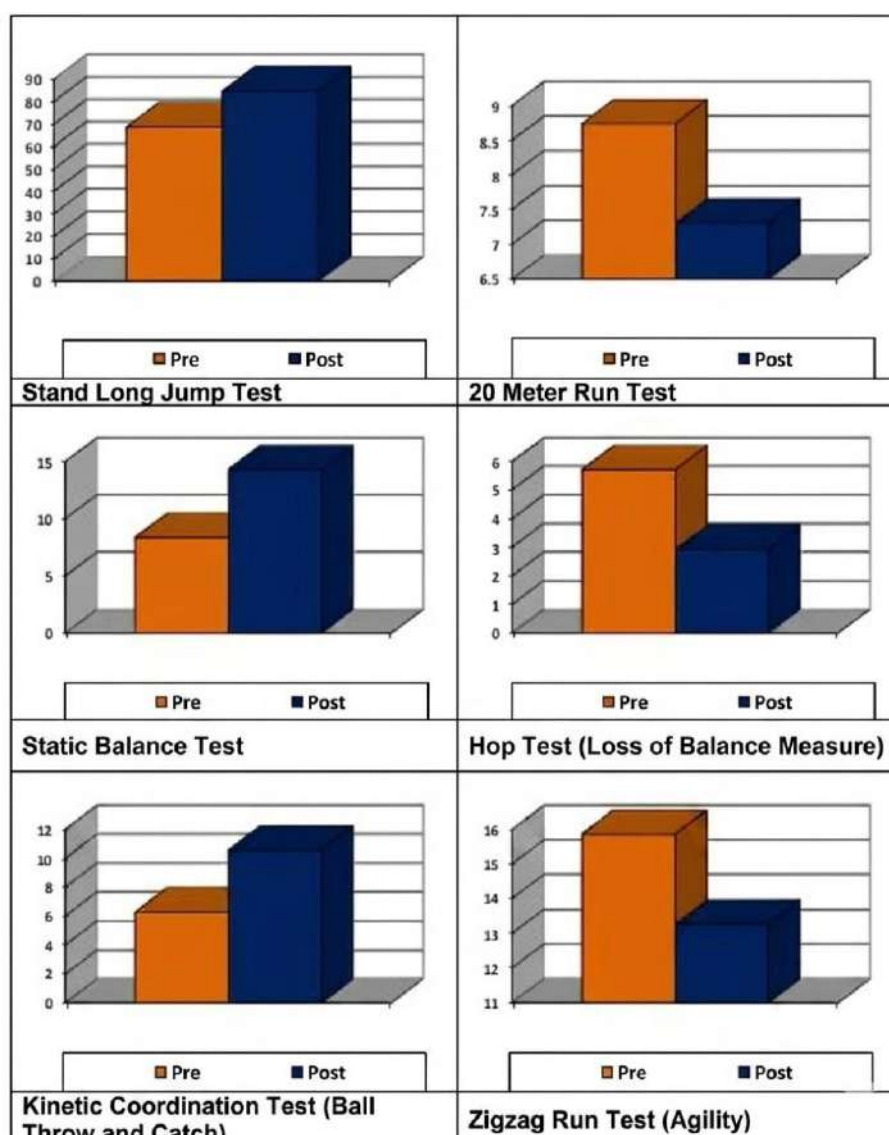


Figure 1. Mean of pre- and post-test measurements for experimental group in motor skills for children with disabilities.

DISCUSSION

Results of study by Özkan and Kale (2023) indicated that the application of a physical activity program for fourteen weeks led to a statistically significant improvement in the motor

skills of children with intellectual disabilities, particularly in speed and agility, balance, bilateral coordination, strength and motor coordination of the upper limbs. This result supports what the current research found in the decrease in the average running time for a distance of (20) meters from (8.74) to (7.31) seconds, and the decrease in the zigzag running time from (15.86) to (13.27) seconds; as repetitive and directed motor activities contribute to improving body control, speed of change of direction and regulation of running steps.

Amira Abdel Rahman's study (2025) indicated the effectiveness of the recreational sports program in developing a set of basic motor skills in children with intellectual disabilities who are capable of learning, including walking, running and jumping, which helps prepare them to participate in sports activities appropriate to their abilities.

(Ku, 2020) indicated that structured interventions for teaching motor skills have positive effects on the motor performance level of children with developmental disabilities, and that providing opportunities for frequent and age-appropriate training helps these children improve their motor skills. The study concluded Motor skills programs are an effective means of developing motor performance for children with developmental disabilities, and this is consistent with the clear improvement in broad jump, running and hopping in the current study, where program provided regular opportunities to perform basic movement patterns with a gradual increase in the level of difficulty.

The researcher believes that statistically significant differences between pre- and post-tests in all motor skills are due to the nature of the proposed recreational sports program, which relied on activities appropriate to the age group and abilities of children with disabilities. It also combined fun with purposeful motor training. Progression from simple activities to more complex ones, regular repetition, and the variety in the use of balls, hoops, cones, and barriers contributed to increasing children's motivation to participate and reducing their feelings of fear or boredom.

CONCLUSIONS AND SUGGESTIONS

The program led to improved running speed and agility. It contributed to development of leg's muscular strength by improving broad jump. It led to improved balance and a reduction in number of times balance was lost. It contributed to improving neuromuscular coordination throwing and receiving ball. Statistically significant differences were found between pre- and post-tests in all motor skills tests, in favor of post-test. Recreational sports program has proven effective in developing basic motor skills in children with disabilities.

Implementing recreational sports programs within schools and centers caring for children with disabilities to develop their motor skills. Attention should be given to developing basic motor skills for children with disabilities at early ages. Developing recreational programs that are appropriate to type of disability, characteristics of children, and their abilities. Providing necessary tools and resources to carry out recreational activities in a safe and attractive manner. Training physical education teachers and staff at disability centers on designing and implementing recreational programs. Encouraging parents to involve their children in recreational and sports activities on a regular basis. Utilize findings when preparing plans and programs for developing motor skills in children with disabilities.

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