Proximus Journal of Sports Science and Physical Education
Volume 2, Issue 12, December, 2025
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

THE EFFECT OF SMALL GAMES ON IMPROVING SOME MOTOR ABILITIES AMONG PRIMARY SCHOOL GIRLS AGED (9–10) YEARS

Prof. Dr. Ban Abdulrahman Ibrahim
Iraq – Al-Mustansiriyah University – College of Basic Education
dr2fixpro@gmail.com

Research Abstract

The aim of the study was to design a program based on small games for primary school girls aged (9–10) years, and to identify the effect of this program on developing some motor abilities among this age group. The research population was intentionally selected from third-grade primary school girls aged (9–10) years, totaling (30) pupils. The research sample was chosen randomly by lottery from the research population and consisted of (15) pupils from the same stage.

Regarding the research procedures, the experimental design of a single group with pre- and post-tests was adopted. The independent variable, represented by the recreational sports program, was applied to the research sample within the school playground. The research instrument was the Purdue Motor Survey Scale, which was prepared to detect perceptual development errors and to identify perceptual motor problems among the pupils.

The results of the study indicated that the aforementioned program had a positive effect on developing the motor abilities under investigation among the research sample within the school environment. In addition, the tests that were applied also showed a positive effect on enhancing motor abilities in the same research sample.

Keywords : Small Games, Motor Abilities

Components of Motor Abilities and Examples:

- **Balance:** The ability to control body posture and maintain stability, whether during movement or while remaining still.
- **Coordination:** The harmonious interaction among different parts of the body (such as hand–eye coordination) and muscle groups in order to perform a specific task effectively.
- **Speed:** The ability to perform movements in the shortest possible time, such as rapid reaction speed.
- **Flexibility:** The range of motion of the joints, such as bending the body or reaching the maximum possible joint movement.
- **Agility:** The ability to change the direction of the body quickly and efficiently.

Definition of the Study:

Introduction and Importance of the Study:

Childhood is one of the most important stages of growth in human life. Researchers have directed their attention toward studying the relationship between the various aspects associated with child development in order to identify the extent of mutual interaction among these aspects and their impact on shaping the child's personality and behavior. Motor abilities have an effect on a child's development in general and are particularly related to the child's ability to learn, whether in the motor or cognitive domain. Depriving the child of motor experiences at an early age hinders the development of perceptual abilities.

Recreation is one of the fields that helps in building the child's personality, whether male or female, by providing opportunities for self-expression and the development of abilities.

Proximus Journal of Sports Science and Physical Education
Volume 2, Issue 12, December, 2025
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

Sports recreation is a type of recreation that includes many physical and sports activities and has an effect on the physiological aspects of the individual who practices various games and participates in competitions with simple organization. These activities rely on certain rules to regulate them, and participation in them does not require a high level of skill or performance, such as ball games, water games, agility activities, and tracking games (Kenana Website, 2013). [1]

Therefore, these activities contribute to developing body awareness, in addition to economic growth in motor performance, and this can only occur through clear perception and the completeness of mental functions. These recreational sports activities are also considered enjoyable for children, as they add a sense of joy, vitality, and positive energy, in addition to other benefits from social, educational, and psychological aspects, foremost among which is the physical aspect.

On the other hand, small games are important in that they contribute to the social development of the child by instilling a spirit of cooperation, respect for others, and developing behavior that enables positive interaction with the society in which the child lives. They instill traits of modesty, self-confidence, and self-denial, and they also develop responsibility, leadership, and the execution of assigned tasks according to the child's abilities and sound readiness. In addition, they serve as a form of treatment for some psychological, emotional, and social problems and pressures among children. They also provide the child with enjoyment, happiness, and pleasure, condition the body, exercise the muscles, develop readiness for learning, and build the child's personality in all aspects. [2]

Small games have several components, namely the physical, motor, mental, and human-relations aspects. [3]

Hence, the importance of the study emerges from the fact that small-games programs represent a type of sport that does not require special rules for performance, and that motor abilities are considered among the important aspects of child development, whether male or female. Therefore, preparing a recreational sports program helps in the development of these abilities and increases the child's social interaction through performance in the school playground with freedom and ease.

Research Problem:

It is well known that early childhood is considered one of the important stages in human life, during which various abilities can be developed, including perceptual–motor abilities, in addition to attention to psychological and social aspects. This may occur either through children's interaction with the environment in which they live or through their practice of various activities, such as small games. Through physical education lessons in some primary schools for girls, it has been observed that insufficient attention is given to developing certain perceptual–motor abilities of pupils while performing motor skills during the implementation of the physical education lesson plan by the school's physical education teacher. This observation motivated the researcher to study this problem and to find a solution by preparing a sports program aimed at developing and improving some perceptual–motor abilities among primary school girls aged (9–10) years.

Research Objectives:

- Preparing a small-games program for female pupils aged (9–10) years.
- Identifying the effect of the small-games program on developing some perceptual–motor abilities among primary school girls aged (9–10) years.

[1] Encyclopedia of Sports Recreation, Kenana website, Internet, 2013.
[2] Al-Ameed Educational Group, Department of Education, Al-Abbas Holy Shrine, Karbala, 2018.
[3] Prof. Dr. Nihad Muhammad Alwan (and others), Lecture titled *Small Games in Physical Education Lesson*, College of Physical Education and Sports Science for Women, University of Baghdad, 2024.

Proximus Journal of Sports Science and Physical Education
Volume 2, Issue 12, December, 2025
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

Research Hypothesis:

There are statistically significant differences between the results of the pre-test and post-test in some perceptual–motor abilities among primary school girls aged (9–10) years, in favor of the post-test.

Research Scope:

- **Human scope:** A sample of primary school girls aged (9–10) years from one of the schools in Baghdad.
- **Time scope:** The period from 23/02/2024 to 30/04/2024.
- **Spatial scope:** The outdoor playground of Bahraa Primary School.

Definition of Terms

Sports Recreation (Al-Ayyam Newspaper, 2023):

It is a type of activity practiced by an individual, whether a child or an adult, during leisure time. It is purposeful and productive in developing the child physically, motorically, and mentally, provided that this time is utilized within sports recreational programs specifically designed for children, through active participation in these programs for the benefit of the child himself/herself.

Motor Abilities (Cookies Website, Internet Network):

These refer to the ability to recognize and distinguish between objects surrounding the individual, to remember the location and movement of objects, their positions, sizes, and shapes, and to identify them without the need to look at them. Perceptual–motor abilities are considered part of the motor senses and help in smooth interaction with the surrounding environment and participation in motor activities such as sports activities and others of various types. These abilities vary among individuals, as they are influenced by age, experience, and the individual's training.

Recreational Program (Mahmoud Suleiman Azab, 2017):

It is a set of recreational activities selected in a manner that suits the needs of participants and fulfills their desires under the supervision of an educational leadership, in accordance with the objectives of recreation.

Research Methodology and Field Procedures

Research Method:

The experimental method was used due to its suitability for the nature of the research.

Research Population and Sample:

The research population was intentionally selected from fourth-grade primary school girls aged (9–10) years, numbering (30) pupils. As for the research sample, it was selected randomly by lottery and consisted of (15) pupils.

The experimental design of a single group with pre- and post-tests was adopted. The small-games sports program under investigation was applied to the research sample in the school playground.

Tools, Devices, and Equipment Used in the Research:

- Measuring tape
- Whistles (3)
- Colored marker pens (3)
- Table tennis and tennis balls (for competitive games)
- Balloons and ribbons
- Colored balls (5)
- Electronic stopwatches (2)
- Arabic sources
- Personal interviews with specialists

Proximus Journal of Sports Science and Physical Education
Volume 2, Issue 12, December, 2025
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

Determination of the Tests Used in the Research:

The Purdue Survey Scale of Perceptual–Motor Abilities (Salwa Khashaima, 2016) [4]was used, as it is characterized by several features, including the inclusion of a large number of perceptual–motor variables. It also represents familiar behavior for all children, in addition to covering the most important areas of perceptual–motor problems faced by children in the primary stage. Moreover, it requires minimal training ability due to ease of implementation and clarity of scoring and evaluation criteria.

The scale includes (31) tests, which were presented to experts and specialists in the fields of motor learning, teaching methods, and mental health to determine the motor abilities appropriate for the ages of the sample. Ten (10) tests were selected based on an agreement rate of (75%) from experts' opinions, as Bloom and Afron indicate the "adoption of the variable that obtains (75%) of the opinions of experts and specialists."

Scientific Bases of Motor Ability Tests:

Validity Coefficient:

The self-validity coefficient was used because it is the most appropriate for demonstrating high self-validity coefficients that reflect the accuracy of the tests in measuring the traits that are intended to be measured.

Reliability Coefficient:

The test–retest method was used to determine the reliability coefficient of the Purdue Scale. The first test was conducted on Tuesday, 21/02/2024, on a sample consisting of (7) pupils. The test was then repeated on Wednesday, 28/02/2024, under the same conditions in which the first test was conducted. After calculating the simple correlation coefficient (Pearson) between the two tests, the reliability coefficient for the group of tests included in the scale under investigation was obtained. Table (1) illustrates this.

Table (1)

Shows the validity and reliability coefficients of the motor ability tests

No.	Test Name	Self-Validity Coefficient	Reliability Coefficient
1	Body Parts Identification	85%	73%
2	Movement Imitation	85%	73%
3	Obstacle Crossing	87%	75%
4	Cross–Weber Test	92%	85%
5	Walking on the Board	86%	72%
6	Jumping	90%	83%
7	Ground Angle	85%	73%
8	Chalkboard Test	91%	83%
9	Rhythmic Writing	91%	83%
10	Visual Control	88%	82%

Pilot Study:

The pilot study was conducted on a sample drawn from the original population but outside the main research sample. Seven (7) pupils were randomly selected from fourth-grade primary school girls on 29/02/2024. The purpose of conducting this pilot study was to ensure the clarity of the tests under investigation for the sample, as well as to determine the time required to perform each test.

Pre-Tests:

[4] Salwa Khashaima, Badr Al-Din Dassa, *Measuring Motor Cognitive Abilities in the Sports Field Among Children*, (Algeria, Journal of Sports Performance Science, Mohamed Cherif Messaadia University, Vol. 3, No. 1, 2021), p. 114.

Proximus Journal of Sports Science and Physical Education
Volume 2, Issue 12, December, 2025
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

The pre-tests were conducted on Sunday, 03/03/2024, on the main research sample. These included the motor ability tests that had previously been nominated by the experts. The performance of the pupils in the research sample on these tests was evaluated by three experts who were present at the testing site, according to the description of each test in terms of its assigned score.

Implementation of the Recreational Program:

A recreational program was prepared and implemented within the school playground. It consisted of twelve (12) recreational units, at a rate of two units per week over a period of six weeks. The program was presented to specialized experts (Appendix (1)) in the fields of teaching methods, learning, and mental health. Two introductory units were also applied in advance to familiarize the members of the research sample with how to perform the small games included in the program, with the aim of improving the motor abilities under investigation.

The units included recreational games and activities performed by the pupils in the research sample, presented in the form of individual, paired, or group exercises.

The daily program time was divided as follows:

- **Preparatory section (10 minutes):** Includes physical exercises to prepare the body joints.
- **Main section (35 minutes):** Includes recreational games according to the program.
- **Final section (5 minutes):** Includes cool-down activities and returning the body to its normal state.

The program units were implemented during school hours for the members of the research sample. The tools specified in the program were used, such as various medium-sized balls, in addition to some markers and pieces of wood that were used during stimulating competitions according to the program under investigation. The program was implemented by the assisting work team (some of the school's physical education teachers) during the period from 06/03/2024 to 23/04/2024.

Post-Tests:

The post-tests of motor abilities were conducted on Tuesday, 30/04/2024, after completing the implementation of the curriculum on the members of the research sample. The performance of the pupils was evaluated by assigning scores for each test in the presence of three experts (Appendix (1)).

Appendix (1)

Experts	College	Specialization
Prof. Dr. Israa Yassin Abdulkarim	College of Basic Education / Al-Mustansiriyah University	Teaching Methods
Prof. Dr. Sadiq Jaafar Sadiq	College of Basic Education / Al-Mustansiriyah University	Motor Learning
Assist. Prof. Dr. Adhra Abdul Hamza	College of Basic Education / Al-Mustansiriyah University	Mental Health

Statistical Methods:

To extract the test results statistically, the SPSS system was used.

Presentation, Analysis, and Discussion of Results:

- Presentation and analysis of the results of differences between the pre-test and post-test for the posture balance test and their discussion.
- **Table (2)**
- Shows the mean differences, standard deviations, standard error, calculated t-value, degrees of freedom, and significance for the Posture Balance Test

Proximus Journal of Sports Science and Physical Education
Volume 2, Issue 12, December, 2025
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

No.	Posture Balance Test	Mean Difference	Standard Deviation of Differences	Standard Error	Calculated t-value	Degrees of Freedom	Significance
1	Walking on the Board	1.31	0.45	0.86	2.50	14	Significant
2	Jumping	1.31	0.07	0.29	5.26	14	Significant

It is evident from the table above that there are statistically significant differences for the tests *Walking on the Board* and *Jumping*. The researcher attributes this to the improved performance of the research sample, indicating the positive effect of the recreational program units implemented in the school playground. The games and competitions included in the program contributed to improving motor abilities through walking, jogging, and jumping movements in different directions, in addition to organizing individual, paired, and group competitions. The improvement in the level of motor abilities under investigation among the sample confirms the effective contribution of the program in enhancing body balance and jumping ability. This agrees with the opinion of Farida Ibrahim (1984, p. 147), who states that "motor abilities in children can be improved through specialized programs."

Therefore, the researcher believes that the program implemented in the school playground, which included elements of excitement and recreation, helped increase the participation of the pupils in the research sample in performing it more effectively. This is confirmed by Tahani Abdul Salam (2001, p. 16), who points out that "there are organized recreational activities dominated by motor performance, such as practicing sports activity."

Presentation and Analysis of Differences Between Pre-Test and Post-Test in (Body Perception) and Their Discussion:

Table (3)

Shows the mean differences, standard deviations, standard error, calculated t-value, degrees of freedom, and significance for body perception in pre- and post-tests

No.	Body Perception	Mean Difference	Standard Deviation of Differences	Standard Error	Calculated t-value	Degrees of Freedom	Significance
1	Body Parts Identification	0.82	0.32	0.25	3.21	14	Significant
2	Movement Imitation	0.42	0.6	0.18	2.46	14	Significant
3	Obstacle Crossing	1.62	0.11	0.18	9.81	14	Significant
4	Cross–Weber Test	1.82	0.8	0.15	3.52	14	Significant
5	Ground Angle	1.62	0.18	0.24	7.25	14	Significant

It is evident from the table above that there are statistically significant differences between the pre-test and post-test in favor of the post-test in the body perception tests. The researcher attributes this to the improvement observed in the research sample during the post-test, reflecting the effectiveness of the program under investigation and its positive impact on motor abilities through the content of the units, which was apparent

Proximus Journal of Sports Science and Physical Education
Volume 2, Issue 12, December, 2025
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

in the games, movements, and recreational activities carried out in the school playground. The improvement in the child's ability in "body perception" is due to the scientific method used in the content of the recreational program units, which had a significant effect on enhancing motor abilities. This, in turn, confirms the importance of the environment and its influence on individual performance. Al-Alousi (1988, p. 233) points out that:

"If the environment is organized in a way that stimulates some of the individual's needs and motives, the person becomes interested in it, and it becomes an important element in their perception. The suitable environment for the development of abilities is the one that satisfies their needs and interests, as skills that enable the child to perform coordinated movements between the eyes, hands, and feet, guide the arms, maintain posture balance, and understand the body image are all considered fundamental for evaluation, improvement, and development in the child."

The researcher confirmed that the recreational games program combined competition, excitement, and enjoyment, which aligned with the inclinations of the research sample, helping to improve their performance.

Presentation and Analysis of Differences Between Pre-Test and Post-Test in (Motor Pairing) and Their Discussion

Table (4)

Shows the mean differences, standard deviations, standard error, calculated t-value, degrees of freedom, and significance for motor pairing in pre- and post-tests

No.	Motor Pairing	Mean Difference	Standard Deviation of Differences	Standard Error	Calculated t-value	Degrees of Freedom	Significance
1	Chalkboard Test	1.72	0.27	0.59	2.96	14	Significant
2	Rhythmic Writing	5.78	0.27	0.48	3.87	14	Significant

Significant at the 0.05 error level

It is evident from the table above that there is a statistically significant difference between the pre-test and post-test in favor of the post-test. The improvement observed in the motor pairing tests is attributed to the effectiveness of the program units, which included games and competitions involving active movements applied in the school playground. Additionally, the availability of supporting tools during the implementation of the small games and their correct use by the research sample contributed to the pupils' engagement while performing the required movements in the games.

Afaf Darwish (1995, p. 78) emphasizes that:

"Resources have a critical effect on the success of activities and the achievement of goals, increasing the enthusiasm of beginners and the types of activity practices, as well as the number of participants."

The researcher believes that the improvement in motor abilities in the post-tests is due to the careful preparation of the program units implemented in the school, considering the repetition of movements during the games and adherence to the allocated time, which positively affected the motor abilities of the research sample. The ages of the pupils were also taken into account when preparing the recreational program.

The achieved results agree with the view of Laila Abdul Aziz Zahran (1997), who states that childhood is the maker of the future, and this depends on the experiences and skills provided to the child, as well as the opportunities given for self-expression and creativity through recreational activities that satisfy the child's urgent need for movement, thinking, and creativity, which are acquired through practicing physical, mental, and skill-based fitness.

Proximus Journal of Sports Science and Physical Education
Volume 2, Issue 12, December, 2025
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

Presentation and Analysis of Differences Between Pre-Test and Post-Test in the (Shape Perception) Test
Table (5)
Shows the mean differences, standard deviations, standard error, calculated t-value, degrees of freedom, and significance for shape perception in the pre- and post-tests

No.	Shape Perception	Mean Difference	Standard Deviation of Differences	Standard Error	Calculated t-value	Degrees of Freedom	Significance
1	Visual Control	2.11	0.03	0.25	4.73	14	Significant

Significant at the 0.05 error level
It is evident from the table above that there are statistically significant differences between the pre-test and post-test in favor of the post-test in visual control. The researcher attributes this to the effect of the program designed to develop motor abilities in the research sample through the content of games and competitions implemented in the school playground, which created excitement and motivation to perform the program units. Some units included games that relied on the accuracy of eye observation and hand movements in specific directions required by the game conditions during execution. Repetition of these exercises had a positive effect on improving visual control ability.
Ali Al-Deiri (1999, pp. 60–61) states:
"The child has the ability to control movement easily and actively from one place to another through vision."
The researcher believes that the process of receiving information from stimuli through the senses, then coordinating it and responding with movement, emphasizes the importance of visual control in developing motor abilities. This agrees with Fouad Al-Bahi (1985, p. 119), who states: *"Sensory perception is a mental process that enables an individual to adapt to their environment. It begins by affecting the sensory organs and is called sensory perception, i.e., through the senses. The eye is the sense of vision, and seeing is the function of this sense."*

Conclusions and Recommendations

Conclusions:

- The small games program had a positive effect on the motor abilities of the research sample.
- The writing variable showed a more positive effect compared to the chalkboard test variable.
- The small games program positively affected motor abilities in the body parts identification variable.
- The program under investigation had a positive effect on visual control.
- In the posture balance test, the effect of jumping was more positive compared to the walking on the chalkboard test.

Recommendations:

- Implement the recreational program in primary schools across various governorates to improve motor abilities of pupils of the same age group.
- Utilize the recreational program within physical education lessons to motivate pupils to learn various sports suitable for this age group in the future.
- Conduct similar studies on different age groups in schools in Baghdad (Al-Rusafa and Al-Karkh).
- Conduct a comparative study of the recreational program between males and females of the same age, as well as for other age groups.

References

- Tahani Abdul Salam, *Recreation and Recreational Education*, Cairo: Dar Al-Fikr Al-Arabi, 2001, p.16.

Proximus Journal of Sports Science and Physical Education
Volume 2, Issue 12, December, 2025
https://proximusjournal.com/index.php/PJSSPE
ISSN (E): 2942-9943

- Jamal Hussein Al-Alousi, *General Psychology*, University of Baghdad, Higher Education and Scientific Research Press, 1988, p.233.
- Noor Library, AI-based Book Search Engine, Cookies Website, Internet Network, 2023.
- Mahmoud Suleiman Azab, "The Effect of Using Small Games in Physical Education Lessons on Some Physiological and Physical Variables of a Sample of Primary School Pupils Aged 9–10 Years," Vol. 21, No. 1, Al-Aqsa University Journal, Palestine, 2017.
- Salwa Khashaima, Badr Al-Din Dasa, "Measuring Motor-Cognitive Abilities in the Sports Field in Children," Algeria: *Journal of Sports Performance Sciences*, Mohamed Cherif Messaadia University, Vol. 3, No. 1, 2021, p.114.
- Farida Ibrahim Othman, *Motor Education for Kindergarten and Primary Stage*, Kuwait: Dar Al-Nashr wal-Tawzi', 2004, p.147.
- Afaf Abdul Karim Darwish, *Motor Programs and Teaching Young Children*, Alexandria: Dar Al-Maaref for Printing and Publishing, 1995, p.78.
- Laila Abdul Aziz Zahran, "Motor Development as a Means for Integrated Child Education from Early Years," Article published in the Proceedings of the Second International Scientific Conference for Women's Sports, Faculty of Physical Education for Girls, Alexandria University, 1997.
- Ali Al-Deiri, *Methods of Teaching Physical Education in Primary Stage*, Yarmouk University Press, Irbid, Jordan, 1999, pp.60–61.
- Al-Ameed Educational Group, Department of Education, Al-Abbas Holy Shrine, Karbala, 2018.
- Prof. Dr. Nihad Mohamed Alwan et al., Lecture titled *Small Games in Physical Education Lessons*, Faculty of Physical Education and Sports Sciences for Girls, University of Baghdad, 2024.
- Fouad Al-Bahi, *Psychological Foundations of Growth from Childhood to Old Age*, Cairo: Dar Al-Fikr Al-Arabi for Printing, 1985, p.119.
- *Encyclopedia of Sports Recreation*, Kenana Website, Internet Network, 2013.
- *Al-Ayam Newspaper*, Bahrain, Issue No. 12657, September 2023.