

Effects of Proposed motor training program on enhancing learning of movement control skills in team sports

Field Study: Primary School - Bou Saada City- Algeria-

تأثير برنامج تدريبي حركي مقترح على تحسين تعلم مهارات التحكم الحركي في الرياضات الجماعية
دراسة ميدانية: المدارس الإبتدائية - مدينة بوسعادة – الجزائر -

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Abstract:

The physical activity is the primary focus of the educational course, which includes sports and physical education. It plays a significant role in developing the child's motor skills, including movement and exercise, before and after the course. This is considered the foundation of physical education for children, as these skills are essential for developing their motor skills.

This scientific research presents the several effects of enhancing learning of movement control skills in team sports . Field Study: Primary School Pupils in Bou Saada City, Significance of the Research is to investigate how motor training program effects in enhancing the learning and execution of movement control skills in team sports. Thus, Showing the crucial time for rapid development and skill acquisition, and to determinate that Fundamental movement control skills comprise one level in the continuum of motor skill acquisition. Therefore, The research population consists of primary school pupils aged between 8 and 10 years..The research sample consisted of 120 pupils of both sexes. They were divided into two groups (the experimental group and the control group).

Keywords: Motor training program; Learning; Movement control skills; Team Sports; Primary School.

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المخلص : تهدف هذه الدراسة إلى اكتشاف تأثيرات الصورة العقلية على تحسين تعلم مهارات التحكم الحركي في الألعاب الجماعية، وأجريت هذه الدراسة على تلاميذ المرحلة الابتدائية في مدينة بوسعادة وتكمن أهميتها في البحث في كيف للتصور العقلي يمكن ان يكون له تأثيرات على تحسين عملية التعلم والتنفيذ للجهاز المهاري الحركي في الرياضات الجماعية، وذلك لأهمية هذه المرحلة السنوية للتلاميذ من أجل التعلم السريع وتنمية مهارات التحكم الحركي، وتحدد أن مهارات التحكم الحركي الأساسية تشكل مستوى واحد في سلسلة اكتساب مهارات التحكم الحركي. ولهذا تكون مجتمع البحث من تلاميذ المرحلة الابتدائية و الذين تراوح سنهم بين 8 و 10 سنوات على مستوى ابتدائيات مدينة بوسعادة بالجزائر، أما عينة الدراسة فكان تعدادها 120 تلميذ من الجنسين منتقاة من مجتمع البحث ومقسمة إلى مجموعتين عدد كل واحدة 60 تلميذا يمثلان المجموعة التجريبية والتي طبقت عليها أداة البحث المتمثلة في برنامج تدريبي، والأخرى الشاهدة والتي واصلت تدريباتها بصفة عادية. وتم اختيار مهارات التحكم الحركي الأساسية من مجموعة عديد من انواع المهارات المختلفة بعناية فائقة لما تتميز وتحتاجه فئة التلاميذ في المرحلة الابتدائية من أجل التعلم.

الكلمات المفتاحية: التصور العقلي، التعلم، مهارات التحكم الحركي، الرياضات الجماعية، المدرسة الابتدائية.

Introduction:

Motor training program is the experience of perceiving an object within one's own mind and is a subjective experience, leading to difficulties in the research and understanding of the phenomenon. Motor training program, the ability to generate and manipulate mental representations of sensory experiences in the absence of external stimuli, plays a pivotal role in cognitive processing. Motor training program also plays a crucial role in problem-solving and creativity. When faced with a complex issue, individuals often engage in mental simulations to explore various solutions and outcomes. The psychology of motor training program in movement and action explores these new findings and may inform an enhanced understanding of motor training program theory, procedures, protocols, strategies, and techniques aimed at enhancing the performance and learning of movement and action. Motor training program represents a versatile psychological skill applicable across disciplines such as sports, medicine, rehabilitation, and neuroscience. Defined as the cognitive

recreation of perceptual and sensory experiences without external stimuli, motor training program encompasses multisensory domains, including visual, auditory, and kinesthetic modalities.

Physical activity, in its modern form through physical education classes in kindergartens, is considered a vital and important aspect of modern education. It serves as a cornerstone for individuals in their daily lives, helping them become well-rounded individuals equipped with skills that enable them to socialize effectively within their communities and keep pace with the development and growth of their surroundings. This equips them with diverse skills that allow them to integrate safely, comfortably, and with greater stability into their environment. Today's child is tomorrow's adult and successor in all aspects of life.

Physical education is an integral part of the comprehensive educational system, a framework that strives to cultivate the nation's health, well-being, and social aspirations. Like other educational subjects, it seeks to find suitable methods for raising generations and making them active citizens, capable of fulfilling their roles in all areas of life to the fullest extent. Under the adopted approach, "The Competency-Based Approach," which places the learner at the center of attention, and within its general perspective on learning, in line with their physical and psychological abilities, the motor and cognitive learning process becomes a distinctive space due to the diversity it offers in physical activities and preparatory games, especially those based on the spirit of cooperation, confrontation, creativity, and expression, and what is required. The learner

Children normally develop movement control skills in a sequential manner. Fundamental movement control skills comprise one level in the continuum of motor skill acquisition. Children at the fundamental motor skill stage are

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building upon previously learned movements and preparing for the acquisition of more advanced skills.

Research Problem:

Motor training program plays a crucial role in problem-solving and creativity. When faced with a complex issue, individuals often engage in mental simulations to explore various solutions and outcomes. These simulations can lead to creative insights and innovative problem-solving strategies. Motor training program allows individuals to mentally simulate different scenarios and manipulate variables without physically enacting them.

Consequently, the following is the main research question: **What effects does the motor training program have on enhancing the learning and execution of movement control skills in team sports?**

Research sub-questions:

- 1- Are there statistically significant differences in the overall score of the Fundamental Movement control skills(Catch and Kick) rating scale between the pre- and post-tests in team sports?.
- 2- Are there statistically significant differences in the overall score of the Fundamental Movement control skills(Run and Vertical Jump) rating scale between the pre- and post-tests in team sports?.
- 3- Are there statistically significant differences in the overall score of the Fundamental Movement control skills(Overhand Throw and Leap) rating scale between the pre- and post-tests in team sports?.

Research Hypothesis :

Main Hypothesis:

There are Effects of motor training program on the enhancing of the learning and execution of movement control skills in team sports.

Sub-hypothesis

- 1- there Are statistically significant differences in the overall score of the Fundamental Movement control skills(Catch and Kick) rating scale between the pre- and post-tests in team sports.
- 2- there Are statistically significant differences in the overall score of the Fundamental Movement control skills(Run and Vertical Jump) rating scale between the pre- and post-tests in team sports.
- 3- there Are statistically significant differences in the overall score of the Fundamental Movement control skills(Overhand Throw and Leap) rating scale between the pre- and post-tests in team sports.

Significance of the Research

- 1- To investigate how motor training program effects in enhancing the learning and execution of movement control skillsin team sports.
- 2- Showing the crucial time for rapid development and skill acquisition.
- 3- To determinate that Fundamental movement control skillscomprise one level in the continuum of motor skill acquisition.

Research Objectives

- 1- The development of movement control skillsand physical fitness and knowledge must begin in the earliest years of primary school.
- 2- The challenge for teachers of physical and sport education is to integrate the teaching of fundamental movement control skillsinto movement and sports programs.
- 3- Define the effects of the motor training program does have on enhancing the learning and execution of movement control skillsin team sports.

Research Delimitations

- **Temporal delimitation:** The study was limited to one academic year during the 2025–2026 school year.

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• **Spatial delimitation:** The study was conducted at a primary school in Bou Saada City.

Definition of Terms:

1- Motor training program: “Motor training program” is a technical term. The concept of motor training program was first consistently used in the, then very new, discipline of empirical psychology at the end of the nineteenth century by psychologists like Francis Galton, Wilhelm Wundt, or Edward Titchener. Motor training program, also, the ability to generate and manipulate mental representations of sensory experiences in the absence of external stimuli, plays a pivotal role in cognitive processing.

2- Learning: Learning has been defined functionally as changes in behavior that result from experience or mechanistically as changes in the organism that result from experience. learning as ontogenetic adaptation that is, as changes in the behavior of an organism that result from regularities in the environment of the organism.

3 - Movement control skills: Movement control skills play an important role in the life course of individuals. It is one of the internal mechanisms that affect the participation and persistence of physical activity. It interacts with physical activity to jointly maintain the physical health of children and adolescents. The dynamic mechanism model of physical activity emphasizes that movement control skills are not only the internal mechanism that affects the participation and persistence of physical activity, but also interact with physical activity to jointly maintain the physical and mental health benefits of children and adolescents

4- Team sports: Team sports includes any sport which involves players working together towards a shared objective. It is an activity in which individuals are

organized into opposing teams which compete to win, examples are Basketball, volleyball, water polo, hand ball, and football.

Primary School: It is defined as "the fundamental educational structure that guarantees all children a unified basic education for nine years, allowing each student to continue education to the maximum extent possible based on their talents and efforts. It prepares them to join production units or vocational education institutions.

Research Methodological Procedures

1- Variables in Experimental Research

There are different types of variables is fundamental to experimental design:

1-1- Independent Variable (IV):

The (IV) of this study is "Effects of motor training program".

1-2- Dependent Variable (DV):

The (DV) of this study is "enhancing the learning and execution of movement control skills".

2- Research Methodology:

The experimental research methodology was employed in this study, The purpose of research design is to determine the explanations for the causes and effects of a precisely defined problem. An explanation of the link between variables is the main goal of this kind of research. The statistical method used to understand the link between the study's many characteristics is known as correlational research. Experimental research is the most common type of research design for people working in the sciences and a variety of other fields.

3-1- Research Population:

The research population consists of primary school pupils aged between 7 and 10 years. This population included primary schools in Bou Saada City in Algeria.

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3-2- Research Sample: The research sample consisted of 120 pupils selected from the research population. They were divided into two groups 60 pupils in the experimental group who participated in the motor learning program based on team sports games, and 60 pupils in the control group who continued with traditional training.

3-3- Research Tool: A training program consisting of games and exercises suitable for the target age group has been prepared. The following fundamental movement control skills have been selected from a wide range of possible movement control skills as being those most essential for primary school children to learn:

- Catch
- Kick
- Run
- Vertical Jump
- Overhand Throw
- Leap

4- Reliability, Repeatability, and Validity :

Reliability refers to the stability of tools and results over time, while Repeatability focuses on the ability to achieve the same results when measurements are repeated under identical conditions. On the other hand, Validity ensures that the tool or system accurately measures what it is intended to measure.

4-1- Expert validity:

Expert validity was evaluated as part of the study to ensure the effectiveness of both the test and the training plan. Training tools were reviewed by experts in physical education and motor learning.

4-2- Test Reliability and Repeatability:

Table (01) : Validity and reliability coefficients

N	Test	Reliability	Decision	Repeatability	Decision
1	Catch	0.87	Statistically Significant	0.93	Statistically Significant
2	Kick	0.83		0.91	
3	Run	0.85		0.92	
4	Vertical Jump	0.77		0.87	
5	Overhand Throw	0.77		0.87	
6	Leap	0.79		0.88	

* r value (0.44), Below a significance level of (0.05) and degrees of freedom of (18)

5- Designing and Implementing Training Programmes

5-1- Pre-Test Application:

Training implementation began with a pre-test to assess pupil's level of basic movement control skills before the start of the training program.

5-2- Training Execution:

After the pre-test phase, the actual training phase commenced and lasted for two months, conducted in a large school playground equipped with sports facilities.

5-3- Post-Test:

After the training program, a post-test was conducted to assess improvements in the key movement control skills one week after the conclusion of the training. The same procedures used in the pre-test were followed, including clarification of the measured skills. The results of the post-test were compared with those of the pre-test to determine the level of improvement.

6- Training program :

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6-1- Teaching Fundamental Movement control skills: Catch - Kick – Run - Vertical Jump - Overhand Throw - Leap

Purpose: To assess the pupil's motor skills

Pupil Objective: To help students achieve good physical fitness by improving the training of various motor skills.

7- Discussion of Results:

There is a statistically significant difference at the 5% significance level between the mean scores of a sample of pupils aged 8 to 10 years in the experimental group on the sports skills index between the pre-test and the post-test.

7-1- First Hypotheses

Table (2): Movement control skills:(Catch and Kick)

Movement control skills	Test Type	N	Mean	Variance	T-Test	Sig	Decision
Catch	Pre-Test	120	7.10	1.63	7.53	0.00	Statistically Significant
	Post-Test		8.17	1.51			
Kick	Pre-Test		3.72	0.22	8.44	0.00	
	Post-Test		4.57	0.21			

****Statistically significant at a significance level of 0.01**

The mean scores of the experimental group in both the pre-test and the post-test of the sports skills assessment were calculated. The results of the applied study were as follows: The T-test was used to determine the statistical significance of the differences between the two tests, and the appropriate statistical decision was made. According to the table, the performance of a sample of 120 pupils was measured, showing a rise in the mean score from 7.10 in the pre-test to 8.17 in the post-test and T.Test was estimated 7.53 regarding to the Catch motor skill in the first hypotheses, but, the second motor skill with the Kick the T-test yielded a

value of 8.44, indicating a substantial difference between the means with a strong statistical significance (Sig < 0.001).

7-1- Second Hypotheses

Table (3): Movement control skills:(Run and Vertical Jump)

Movement control skills	Test Type	N	Mean	Variance	T-Test	Sig	Decision
Run	Pre-Test	120	3.29	0.22	7.94	0.00	Statistically Significant
	Post-Test		4.33	0.21			
Vertical Jump	Pre-Test		1.20	0.21	3.50	0.00	
	Post-Test		3.15	0.20			

****Statistically significant at a significance level of 0.01**

Moreover, To verify the validity of the second hypothesis, we used a T-Test with two related samples to determine the significance of the difference between the means of the pre-test and post-test. The table shows that the value of (T) is statistically significant at a significance level of 0.01, and since the calculated value of (T) is (7.94) for the Run motor skill and the value of (T-Test) is 3.50 toward the Vertical motor skill, we accept the hypothesis that said - there Are statistically significant differences in the overall score of the Fundamental Movement control skills(Run and Vertical Jump) rating scale between the pre- and post-tests in team sports.

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7-1- Third Hypotheses

Table (4): Movement control skills:(Overhand Throw and Leap)

Movement control skills	Test Type	N	Mean	Variance	T-Test	Sig	Decision
Overhand Throw	Pre-Test	120	3.33	2.60	4.62	0.00	Statistically Significant
	Post-Test		4.55	2.1			
Leap	Pre-Test		1.77	1.03	4.94	0.00	
	Post-Test		4.20	1.55			

**Statistically significant at a significance level of 0.01

Furthermore, To verify the hypothesis that there are statistically significant differences in the overall score of the Fundamental Movement control skills(Overhand Throw and Leap) rating scale between the pre- and post-tests in team sports. Statistically significant differences, we used a paired-samples t-test to check the significance of the differences between the pre- and post-test means. Where the calculated value of (T) reached 4.62 for the Overhand Throw skill and 4.94 to the Leap motor skill at a significance level of 0.01. Therefore, The third hypothesis was accepted.

This results shows the success of the training program in improving sports movement control skills, declare that the pupils obtain new abilities.

Motor training program, representations of sensory experiences in the absence of external stimuli, plays a pivotal role in cognitive processing. This article delves into the fascinating realm of motor training program and its impact on various cognitive functions. We explore the neural mechanisms underlying motor training program, its role in memory, problem-solving, creativity, and its applications in clinical psychology and education. By unraveling the inner workings of the mind, we gain valuable insights into the intricate processes that

shape our cognitive abilities. The human mind is a complex web of thoughts, memories, and sensations. While the external world provides us with a multitude of sensory experiences, the mind has the remarkable ability to generate and manipulate mental representations of these experiences even in their absence

Conclusion:

The results also indicate that the training program had a clear positive impact on developing physical abilities related to changing direction, a fundamental skill in many team and individual sports. This marked improvement in performance between the two groups can be attributed to the variety and distinctiveness of the exercises used in the training program, which were specifically designed to stimulate muscles and improve neuromuscular coordination. The consistent repetition of these exercises also contributed to enhancing muscle memory and improving reaction speed to sudden movements, factors that contribute to improved athletic performance in general. Furthermore, the importance of continuous evaluation of training interventions is highlighted by these results, which serve as evidence for ensuring the achievement of desired goals in developing physical skills. This supports the idea of adopting similar training programs to increase the effectiveness of athletic performance in activities that require rapid changes in direction.

Motor training program is a fascinating cognitive process that enables individuals to create sensory-like experiences within their minds. It plays a pivotal role in memory, problem-solving, creativity, and has significant applications in clinical psychology and education. By unravelling the inner workings of motor training program, we gain a deeper understanding of the human mind and how it shapes our cognitive abilities. As research in this field continues to advance, it is likely that motor training program will continue to

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reveal its profound influence on our daily lives and provide new avenues for enhancing cognitive processes and wellbeing. The role of motor training program is vital for improving teaching and learning strategies. Incorporating imagery-based techniques into the classroom can enhance comprehension, retention, and problem-solving skills.

This phenomenon, known as motor training program, is a fundamental component of cognition and has garnered significant attention from psychologists, neuroscientists, and educators. In this article, we explore the intricate relationship between motor training program and cognitive processing, shedding light on the inner workings of the mind. Motor training program involves the generation of sensory-like experiences in the mind's eye. When we recall the taste of a delicious meal, imagine the face of a loved one, or mentally simulate a future scenario, we are engaging in motor training program. It is a unique cognitive process that enables us to re-create sensory experiences internally, bypassing the need for external stimuli.

Basic motor skills are a set of initial movements that form the foundation for the growth and development of more complex motor skills in a child. These skills include three main types: locomotion skills (such as walking, running, and jumping), balance and body control skills (such as standing on one leg and balancing while moving), and manipulative skills (such as passing and throwing). These skills are essential for a child's physical, neurological, and social development, as they represent a foundation for building the advanced motor abilities required for sports and educational activities in later age stages. Mastering these skills requires a supportive learning environment and regular training that aligns with each child's developmental characteristics.

REFERENCES:

1. Peng Shi 1* and Xiaosu Feng, Motor Skills and cognitive benefits in children and adolescents: Relationship, mechanism and perspectives, School of Physical Education, Shanghai University of Sport, Shanghai, China, *Frontiers in Psychology*, TYPE Review PUBLISHED 21 November 2022, DOI 10.3389/fpsyg.2022.1017825.
2. Fundamental Motor Skills: A Manual for Classroom Teachers, Published by the Community Information Service, Department of Education, GPO Box 4367, Melbourne Vic 3001, Australia.
3. Cornelia Frank and others, Imagery training in school-based physical education improves the performance and the mental representation of a complex action in comprehensive school students, *Psychology of Sport and Exercise*, Volume 56, September 2021, 101972
4. T.A. Muhammad Hashem Baddai, Impact of Motor Learning Based on Team Sports in Developing Sports Skills among a sample of children aged 8 to 10 years in primary school, Kirkuk University – College of Media, Iraq. *Proximus Journal of Sports Science and Physical Education* Volume 2, Issue 5, May, 2025 <https://proximusjournal.com/index.php/PJSSPE> ISSN (E): 2942-9943.
5. Motor Skills and Cognitive Processing: Unraveling the Inner Workings of the Mind Andry Pestry* Department of Psychiatry and Psychology, National Taiwan University, Taipei 10617, Taiwan.
6. Motor Skills, Philosophy, Psychology, Neuroscience, BENICE NANAY, Oxford University, 2023.
7. Joel Pearson, Motor Skills, Topic Editors: The University of New South Wales, Australia Stephen M. Kosslyn, Stanford University, USA..
8. Dr Mahmoud M. S. Abdallah, Scientific Research Methodology and Experimental Design in Education and Language Learning Studies: Basics and Guidelines, Faculty of Education, Assiut University, 2025.
9. Andrew Soundy and others, The Effects of Imagery Practice on Athletes' Performance: A Multilevel Meta-Analysis with Systematic Review, Faculty of

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Health Sciences and Sports, Macao Polytechnic University, R. de Luís Gonzaga Gomes, Macao.

10. Bianca A. Simonsmeier and others, The Effects of Motor Imagery Training on Performance and Mental Representation of 7- to 15-Year-Old Gymnasts of Different Levels of Expertise, American Psychological Association. Sport, Exercise, and Performance Psychology © 2018 American Psychological Association 2018, Vol. 7, No. 2, 155–168.
11. Cornelia Frank, Dominic G. McNeil, Michael Spittle, The Psychology of Motor Skills in Movement and Action, Edited By Riki S. Lindsay, Edition 1st Edition, First Published 2025, eBook Published 20 October 2025, Pub. Location New York.
12. Gurvinder SINGH and others, The Role of Motor Skills on Sports Performance in Jumping Sports, © 2025 IJRTI | Volume 10, Issue 3 March 2025 | ISSN: 2456-3315.
13. Jan De Houwer & Dermot Barnes-Holmes & Agnes Moors, What is learning? On the nature and merits of a functional definition of learning, Psychon Bull Rev DOI 10.3758/s13423-013-0386-3.