

Impact of Football in the Development of Mobility and Movement among the Kindergarteners

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Abstract: *Football is a popular sport for kids, promoting physical and mental development. These early years are crucial for building mobility, foundational skills, and nurturing young talent. Football involves motor skills, teamwork, and tactical thinking. While growing in China, it lags behind Europe. Using football to keep kids active and outdoors is essential for kindergarten sports. Football activities positively impact mobility. Continuous program improvement is needed, with both teachers and the academic community involved. Statistical results and teacher observations suggest room for program enhancement. By improving teaching methods and materials, the football program can offer a better learning experience.*

Keywords: *early childhood development, sports development intervention, child movement and mobility, football, education management, curricula application and development*

1. Introduction

Football is a beloved sport among young people, and tailored football games for children have been developed to encourage their physical and mental development [1]. These early years are crucial for improving mobility, laying the foundation for football skills, and nurturing young football talent.

Football is a sport that involves motor learning, environmental interaction, group cooperation, and mental operations. It demands motor learning for the necessary skills, environmental interaction due to the venues where it's played, group cooperation as a team sport, and mental operations in terms of tactics and formations[2]. While football is growing in popularity in China, it has room for development compared to its status in European countries.

Promoting football as an intervention activity for young children's physical development can help steer them away from sedentary lifestyles and encourage outdoor sports and mobility. Designing football games for mobility drills and understanding children's preferences are key for kindergarten sports professionals.

An experimental intervention involving football activities and interviews revealed a positive impact on kindergarteners' mobility and movement. Although there are minimal conflicts between learners and educators, ongoing evaluation and program development are essential to meet evolving student needs. Identifying and addressing student and group-specific issues is a shared responsibility among instructors and the academic community[3].

Movement development was initially recognized as one of the components of the health curriculum in my nation's "Guidelines for the Learning and Development of 3-6-year-old Children," which were formally published in October 2012. Among them, the basic movement capacity steadily moves from the primary stage to the mature stage between the ages of 5 and 6 [4]. It can fully pique children's attention and stimulate it while also enhancing mobility, making it a workout that promotes children's physical fitness in a way that takes into account the development of their cognition and emotions.

The "Healthy China 2030" Planning Outline, which was adopted in August 2016, makes recommendations for promoting the development of a healthy China with a focus on children's health issues, which are a necessary prerequisite for promoting the overall development of everyone. According to the features of the physical and mental development of young children aged 5–6 years, exercises are defined as focused on the development of mobility motor abilities in young children through movement.

In football activities, technical movements are extremely complex. This study investigates the

impact of football games on the development of mobile movements in children aged 5 to 6, and investigates the main factors that affect technical movements. And then on this basis, this study proposes practical and feasible solutions to address the current lack of channels for the development of children's sports in China, in order to provide comprehensive and healthy development for children and provide practical experience for reference.

2. Research design

This study conducted an experimental intervention of football activities for 5 to 6-year-old children for a period of 10 weeks, to explore the impact of football activities on children's motor development, and to analyze the potential link between children's motor development and football activities. By collecting and consulting literature, the author found that football games are of great significance to children's physical and psychological development. Physical aspects include physical fitness, physical quality and other similar factors, while psychological aspects include attention, self-control, and the like.

Through expert interviews and re-analysis of literature data, the researcher determined the subjects and test indicators of this experiment and formulate a 10-week experimental intervention plan. The subjects were then be pre-tested, and applied to a specific experimental group played successive football games for 10 weeks. The control group also attended classes normally, according to the content of the kindergarten syllabus. After 10 weeks of experimental intervention, the subjects were tested after the experiment, and all the experimental data were integrated and processed using SPSS24.0 and Microsoft Excel software. To aid the numerical data, expert interviews were conducted along with re-consultation of literature, to produce analysis on the indicators of the experiment.

The researcher chose the kindergarten attached to Changsha Normal University as the research site. It was founded in July 1951 as a kindergarten directly under the Hunan Provincial Department of Education that integrates full-time care. It is also a teaching experiment for training preschool teachers.

Through solid education and scientific research, the kindergarten has formed a curriculum system with kindergarten-based characteristics, focusing on art and physical education, which cover educational content that promotes the all-round development of children.

In this study, through communication with kindergarten leaders, the researcher and kindergarten physical education teachers participated and made detailed records.

3. Methodology

This research focused on the items in the questionnaire, and provided interview guide questions for the interviewees. The research object of this research was be limited to the 5 to 6-year-old children in the first class of the kindergarten affiliated to Changsha Normal University in Hunan Province. Through comprehensive consideration, 48 (24 boys, 24 girls) 5-6-year-old kindergarten children selected as the experimental subjects by means of random sampling. The children were then divided into the experimental group (n=24) and the control group (n=24) by drawing lots. Despite the selection process among comparative samples being random, there were employable inclusion criteria to assure that the study proceeded according to its timeline. Hence, respondents must:

- ① Be a pupil of Changsha Normal University;
- ② Be playing football;
- ③ Have no history of neurological or muscular system diseases in the last three (3) months; and
- ④ Have no history of vestibular system diseases.

This research is expected to benefit the following groups or individuals:

Government managers. Let them comprehend the current state of children's football development and plan for future decisions around football growth.

Football teacher. Let them discover pedagogies to instill into children the skills that preschool football teachers should possess for their health development.

Pupils. In primary school, we should cultivate students' interest in football and lay the foundation

for future learning.

Kindergarten manager. This will help them have a better grasp of the Kindergarten Football Program Development Plan's design and implementation.

Students' Parents. This study will serve as a resource for students' parents in the future, assisting them in selecting appropriate sports.

Kindergarten administrators. The study's findings will help school administrators and higher-level employees make decisions. We provide effective suggestions for the planning and management of kindergarten development that are conducive to the scientific development of kindergartens.

Future researchers. This research will help future practitioners who are interested in examining the needs, possibilities, and opportunities for young children in football.

Those who failed to pass one of the above criteria were excluded from this study, and those who meet the requirements were included in the experiment as study object.

During the test process, the teacher did not correct or guide the subjects to ensure the validity of the results. After the experiment, the children were, again, tested with the same experimental equipment and evaluation indicators. The data before and after the experiment were recorded by the researcher and an assistant teacher to ensure the same test level data's validity and accuracy.

In this paper, SPSS24.0 and EXCEL software was used as statistical method for processing experimental data. The data to be obtained were expressed as mean \pm standard deviation. The difference between the two groups of children before and after the experiment was analyzed using the independent sample T test, and the difference within the group were analyzed using the paired T test. The significance level was set as $P < 0.05$, and the very significant level was set as $P < 0.01$. Finally, the experimental results were analyzed.

In order to ensure the scientific nature of the samples, all children in the two classes were tested for their mobility skills and physical fitness before the experiment. This measured their present ability in doing such extracurricular activities. In the end, the researcher chose 24 males and 24 females in each class to function as experimental subjects for the experiment. The physical assessment for the pupils was conducted twice and used as the main subject of analyses.

This study used the data through a Microsoft Excel software to make statistics and sort out the data of children's motor skills. The researcher then imported the recorded data into the SPSS21.0 software and conducted an independent sample T-test on the data of the experimental group and the control group obtained for the first time. A $P > 0.05$ between the two groups indicates that there is no difference, and the experimental intervention can be carried out; meanwhile, if $P < 0.05$ between the two groups has yielded, it means there is a difference between the two groups, which is not statistically significant. Secondly, the data collection of children's motor skills was carried out, and the independent and paired sample T-tests were used for the inter-group and intra-group variables, respectively. Finally, the data was organized and analyzed.

4. Results and discussion

This paper provides the results and supporting analysis of a study conducted by the researcher using the methods described in the previous chapter. It can be seen that the average age of the subjects in the test group was 5.70 years old, while the average age of the subjects in the control group was 5.76 years old. As Mo (2015) said, in the growth process of children, as the age increases, the degree of motor development also changes accordingly. The development ability of gross motor is proportional to its age, and the development ability of each movement is proportional to its age. The pace of development is different. These results indicate that the mean ages of the various groups are not far from each other and are at the higher end of the age spectrum of the respondents in this study. With this in mind, the expected level of development is likely to be the same as that expected for their respective age levels. Furthermore, it is worth noting that there was virtually no difference in the age of the respective subjects in the two experimental groups.

There were equal numbers of men and women in the experimental and control groups, 12 men and 12 women in each group. Such an equal number of respondents by gender suggest that the data from this study may yield more significant findings given the equal status of each gender. This result refutes the original claim of Yang (2019) that there are significant differences in various indicators of physical

exercise ability between different genders, and the average value of girls is higher than that of boys. This means that since there were equal numbers of male and female subjects, significant differences in their performance may be more apparent in subsequent tests conducted in this study.

Mean height (in millimeters) of subjects from the test and control groups. It can be seen that the average height of the subjects in the test group is 116.29 mm, with a standard deviation of 4.35; while the average height of the subjects in the control group is 116.04 mm, with a standard deviation of 4.62. The results showed that there was little difference in the height of the subjects. Therefore, differences may be more easily observed given the equal status of physical tools between the respective members of the two groups studied.

Dominant foot distribution from test and control group subjects. Most subjects in the test group ($n = 21$, 87.50%) and control group ($n = 19$, 79.20%) used the right foot as their dominant foot. Although the majority of the study's subjects were right-footed, this is not expected to have an overall impact on the study's expected results. However, psychological biases stemming from the cultural norms of the sport may indicate a preference for left-footed players in terms of aesthetic or technical value.

Bounce was highest among subjects in the test group ($\bar{x} = 3.25$, $SD = 1.15$), while running was highest among subjects in the control group ($\bar{x} = 3.50$, $SD = 1.22$). This result is consistent with earlier findings by Li Jing (2013) that children in one province in China had lower levels of physical activity development. Although not at very high levels, the results indicate that students' activity levels are above the threshold that can be labeled "low." It can also be said that based on the research results of Jicy (2010) and Aye (2017), children's physical activity ability and physical fitness and motor development levels are on a downward trend, and preschool children's motor development levels are on a downward trend[5-6]. Therefore, it can be said that the mobility level of the subjects of this study is at a satisfactory level but has not yet reached its full potential, which may also reflect its maximum training possibilities that have also not been reached. Additionally, it must be recognized that the test group has a lower mean and therefore a higher potential for development.

Differences in movement standards between subjects in the test group and the control group. Results showed no significant differences in pretest scores for the locomotion criterion and all of its subtests (running, gliding forward, jumping, bouncing, standing, and the overall movement test). Mobility is a very important motor skill for young children, which can determine whether a child is able to participate in healthy physical activities and is often used in many sports competitions[7]. Acknowledging that the results showed that both groups had the same mobility scores and could be compared from the outset, it was clear that the mobility action standard levels were almost identical for all study subjects and therefore any differences in specific training were almost immediately observable to the students. We use Koch's evaluation to compare this progress. Research has shown that the larger the development of coarse muscles, the stronger their ability to perceive the body, which is beneficial for the development of children's motor abilities.

Subjects' activity standards after the football game. It can be seen that the standing long jump is the highest among the subjects in the experimental group ($\bar{x} = 5.75$, $SD = 1.48$) and the \bar{x} control group ($\bar{x} = 3.50$, $SD = 1.48$). standard deviation = 1.47). As earlier findings noted, there were significant jumps in performance across subjects, however, only the test group showed substantial improvement. With such results, it is accepted, and vice versa, also supported by studies that claim that motor training improves children's spatial search abilities and that the higher the level of their gross motor development, the better; there is a positive correlation between specific motivation and mobile skill proficiency.

We conducted a study on the differences in exercise standards between the test group and the control group of subjects. Results showed significant differences ($p < 0.05$) in posttest scores for the locomotion criterion and all of its subtests (running, gliding forward, jumping, bouncing, standing, and overall movement test). Positive t-values reflect that the test group performed better scores compared to the control subjects. Hong (2019) believes that football games can cultivate children's interest in football and promote their healthy growth. Xu (2002) also believed that to improve the level of football, youth training must be established. Therefore, the training of football players must be methodical, especially in early infancy [8].

Then, the above results can be interpreted as an effective intervention for the test group subjects. This shows that the experimental approach conducted in this study was successful and improved students' ability to perform standard activities, that is, specific physical skills. Furthermore, the results demonstrate that more targeted training can improve students' potential learning and development curves, rather than leaving them in a more static training regime. Therefore, similar interventions may

also serve the same purpose in the same setting as this study.

5. Conclusions and perspective

The development of movement and mobility is a key aspect of young children's development. It is one of the major parts of a child's physical development and their eventual advancement of skills and talents. In this regard, it is necessary to inculcate the right mentality and psychological strength in students through proper culture, such as simple physical activities such as intervention football activities in physical education classes.

Statistics on student performance development and teacher observations agree that while the current curriculum is “okay”, there is still significant room for improvement – there is scope for optimization of student learning and training to maximize their growth.

With these findings, the mobility and movement training being implemented in the local school used in this study proved to be a similarly satisfactory factory but improve able program with specially designed upgrades to its current pedagogy, technology, materials and practical programs, which can be optimized through the Football Intervention Program and provide a much improved program to enhance students' short- and long-term mobility and athletic abilities.

The findings show that students' standard mobility is moderate but has the ability to improve with the right intervention. Before considering it as an ideal, there are some issues that need to be addressed. Therefore, the author of this article proposes the following suggestions: firstly, teaching technology should be constantly updated. Secondly, continuous educational training should be provided to teachers based on the most effective methods for students, providing training and materials. Finally, the best training level according to students' needs should be provided; consistent communication with students regarding their needs should be established; Continuously reviewing teachers' observations of students so that they can determine appropriate training for them; And the research scope by utilizing other applicable sports activities or sports needs to be expanded.

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