

# Early Childhood Gross Motor Development Through Sports Catching and Throwing Balls

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## ABSTRACT

This study aims to describe the development of gross motor skills in early childhood through ball-catching and throwing activities at TK Pertiwi Menden. Gross motor skills are an important aspect of child development because they are related to coordination, balance, muscle strength, and basic movement skills. The study uses a qualitative approach with a descriptive method through direct observation of children's activities. The results of the study show that ball-catching and throwing activities can improve hand-eye coordination, agility, balance, and large muscle strength. In addition, these activities also foster discipline, cooperation, and children's self-confidence.

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## 1. INTRODUCTION

Early childhood education emphasizes the development of all children's potential as a whole so that they grow into healthy, active, and balanced individuals.(Yusnita, Marlin, Astria, & Rahmawati, 2024) This period is known as the golden age (*golden age*), which is a period in which the child experiences very rapid development and becomes the basis for the next stage of development. At the time *golden age*, children need appropriate and directed stimulation to optimize all aspects of their development, including moral, motor, emotional, language, and artistic development. Therefore, providing a varied and enjoyable learning experience is essential to support the achievement of optimal maturity in every aspect of early childhood development (Placeholder1).(Triando & Yeni, 2021)

This opportunity must be used with various activities and activities that can support children's growth and development. One of the important aspects that need to be considered at this time is motor development. There are several aspects for the development of children's gross motor skills, namely social-emotional aspects, cognitive aspects, aspects of religious and moral values, language aspects, and physical motor aspects. If this aspect is stimulated, it will develop optimally.

Motor development is the starting point in early childhood development, motor development will affect all aspects of development both directly and indirectly. Supporting gross motor development, children need activities that involve regular and enjoyable active physical movements. One form of effective activity is sports, especially football. Football sports are one of the tools/media in developing

gross motor skills in early childhood, one of the activities that uses the ball is throwing and catching the ball is very popular with children. This activity combines a variety of basic gross motor movements, this activity not only trains the child's physical strength, but also helps improve coordination, balance, and agility.

The benefits of playing ball according to Amalia (2022) include various aspects of child development. First, ball games can Train cohesiveness, because children learn to work together with their friends to achieve common goals. Second, this activity can Strengthen mentally, because children are trained to be brave, confident, and not easily give up when facing challenges in the game. Third, ball games as well Helps the physical growth process, especially in increasing height, since physical activity involving movements of the whole body can stimulate the development of muscles and bones. Fourth, this activity Maintaining body stamina, because active movements such as running, throwing, and catching the ball can improve physical fitness and endurance in children. Fifth, ball games Practice concentration, because children must focus on observing the direction of the ball, estimating the distance, and coordinating their movements precisely. In addition to these benefits, the game of ball also serves to develop gross motor skills, improve brain function through coordination of movements and quick decision-making, maintain body health, and build children's social skills through interaction, cooperation, and sportsmanship in play. (Priatna & Atika, 2025)

Ball games use the ball as a medium, the purpose of using this ball exercise forms the foundation of child development, especially in gross motor aspects. Gross motor includes the ability to move the body that involves large muscles, such as walking, running, jumping, and gross motor coordination in early childhood is one of the important indicators in the optimal growth and development process. (Mulyani, Sianturi, & Rahman, 2023) Through soccer sports activities, children can learn while playing. In addition, this activity also provides additional benefits in developing children's social skills, such as cooperation and communication. Therefore, it is important for Pertiwi Menden Kindergarten to develop a soccer sports program that is in accordance with the characteristics and needs of early childhood.

In the implementation of early childhood education, gross motor development is one of the important aspects that must be considered because it is directly related to physical growth, movement coordination, and children's readiness to participate in learning activities in the next stage. However, the reality in the field shows that there are still many kindergarten teachers who have difficulties in designing sports activities, especially football, that are in accordance with the characteristics of children's development. Lack of understanding of the principles of gross motor development and limited supporting facilities and infrastructure are obstacles in the implementation of these activities. In fact, football sports are a form of physical activity that is simple, fun, and easy to do, and can train various basic motor skills such as throwing, catching, kicking, and running. Soccer sports activities can also foster other aspects in children, such as cooperation, discipline, and self-confidence, so they are beneficial not only for physical development, but also social and emotional development. By looking at these potentials and problems, it is necessary to conduct more in-depth research on the development of children's gross motor skills through football sports activities that are applicable and relevant to the real conditions at Pertiwi Menden Kindergarten. This research is expected to be able to provide a more comprehensive understanding of the role of football in supporting early childhood development, as well as being a reference for teachers and schools in developing physical activity programs that are creative, interesting, safe, and beneficial for children's overall growth and development.

A number of previous studies have shown that ball sports and games with balls are effective methods in developing gross motor skills in early childhood. (Herdini & Darmayanti, 2024) The results of field research show that the game of catching and throwing the ball makes a significant contribution to strengthening children's physical abilities. This activity was originally designed to develop gross motor skills, primarily through one-handed throwing and catching movements using two hands. These activities help children practice movement coordination, body balance, and large muscle strength. Furthermore, the game of catching and throwing the ball turns out to not only function in the

development of gross motor skills, but also to train fine motor skills and potential talents of children. Repetitive movements can help muscles become stronger, more flexible, and less stiff. In addition, children can explore both individually and in groups, so this game presents a unique, imaginative, fun, and authentic learning experience. The findings of the study also show that the game of catching and throwing the ball is able to improve concentration, make children more active, disciplined, and responsible. In addition, the game strengthens social skills through the understanding of the concept of cooperation, which is important for the character formation of children aged 5–6 years. Thus, simple games such as catching and throwing the ball can be used as an effective learning medium in supporting motor development as well as social-emotional aspects of early childhood. (Harahap, Yani, & Dasopang, 2023)

Football sports activities applied at Pertiwi Menden Kindergarten are one of the integrative learning strategies in developing early childhood gross motor skills. Activities such as kicking, dribbling, throwing, and catching the ball not only involve physical skills, but also train the child's coordination, balance, strength, and agility. Through a fun approach, this activity becomes a learning medium that is both educational and recreative, so that children can learn while playing. In addition, the application of football also contributes to the formation of social skills, discipline, and cooperation, which are very important in supporting children's development holistically in the golden age.

## 2. METHODS

This research method uses a descriptive qualitative approach, which aims to understand and describe in depth through direct observation, interviews, and documentation. (Ghony, Wahyuni, & Almanshur, 2020) This research was chosen to understand in depth the process, form, and impact of football sports activities on children's gross motor development naturally in the early childhood education environment, especially at Pertiwi Menden Kindergarten. This research was carried out at Pertiwi Menden Kindergarten. Research activities are carried out during the month of September with flexible time following the schedule of activities of children and teachers at school. The subjects of this study are group B children, class teachers and principals at Pertiwi Menden Kindergarten, the selection of subjects is carried out purposively, namely based on the consideration that they have experience and direct involvement in football sports activities that are the focus of the researcher. The data collection technique is carried out by several methods, namely observation, the researcher conducts direct observation of children's activities when participating in football sports activities, recording the form of activity, children's responses, and the teacher's involvement in the process. (Scott, 2020)

## 3. FINDINGS AND DISCUSSION

Based on the results of observations and interviews with teachers, football sports activities at Pertiwi Menden Kindergarten are carried out in the form of games that are adjusted to the age and abilities of the children. One of the activities that is routinely done is the game of throwing and catching the ball in pairs. This game begins with two children facing each other, then the teacher gives instructions by counting "one, two, three" as a sign of the start of the game. Next, the children throw each other and catch the ball in turn. This simple activity is designed to train gross motor skills, specifically basic movement coordination such as throwing, catching, and running. In its implementation, teachers play a role in providing clear but flexible directions so that children can participate in activities comfortably. The results of the observations show that children seem enthusiastic, active, and excited, so this soccer sports activity is not only beneficial for developing gross motor skills, but also in accordance with the interests and needs of early childhood development

After the implementation of football sports activities, it shows that this activity is able to have a positive impact on the gross motor development of early childhood. Children look very happy, agile in moving, and able to maintain balance, focus on throwing and catching the ball, more skilled in controlling body movements. Some children who tend to be passive begin to participate in activities with activity and courage in participating in games. The teacher also said that after the ball sports

activities were carried out, the children were more responsive and focused on movement instruction and showed gross motor skills and progress such as catching with balanced power and throwing the ball to the opponent appropriately. Soccer sports also help children to learn to regulate their movements in various positions, at the time of sudden stops and runs.

The role of teachers is essential for facilitating and designing soccer activities. by adjusting the level of difficulty based on the child's ability. Teachers are not only directors, but also motivators and observers of children's development. Teachers also arrange activities. In addition, teachers also ensure that this activity is carried out in a fun, safe and educational way for children. During the interview, the teacher said that they always evaluate the activities carried out to make them interesting, fun and educational. Constrained by infrastructure, teachers try to maximize the use of simple media such as plastic balls and boundary cones.

During the implementation of football sports activities, there are several obstacles faced by the school, namely the limited number of safe game equipment suitable for early childhood, not all teachers have a background in physical education or training to design systematic motor activities. Football sports activities are carried out in the classroom, so children are not too free to play. Overcoming these obstacles, the school is trying to improvise with existing tools and collaborate with parents in preparing simple equipment. In addition, teachers must also learn and practice and participate in workshops on the development of gross motor physical learning in early childhood so that activities are more structured. Planning to make a schedule of sports activities for the development of children's gross motor skills that are more routine and diverse so that children get regular physical stimulation, with proper development, this activity is expected to be an effective means in the physical growth and social skills of children.

Based on the results of interviews with teachers at Pertiwi Menden Kindergarten, the activity of catching and throwing the ball was chosen because it was considered a simple but effective method to develop gross motor skills in early childhood. Through this activity, children can practice coordination between the eyes, hands, and feet at the same time, while strengthening muscles and maintaining balance. The teacher explained that after the activity was carried out regularly, the child's development looked quite significant. Children who initially had difficulty throwing or catching the ball slowly began to show better skills and increased confidence. However, teachers also face challenges, such as differences in children's abilities and limited facilities in the form of a limited number of balls so that the implementation of activities must be carried out in turn. To overcome this, teachers provide a variety of games to keep children excited, for example by playing in pairs, increasing the throwing distance, or involving small groups. This effort makes children not get bored quickly and remain enthusiastic about participating in activities. Furthermore, teachers emphasized that the game of catching and throwing the ball not only supports gross motor development, but also contributes to the formation of children's social and emotional skills, especially in terms of cooperation, discipline, and confidence from an early age.

Football sports activities at Pertiwi Menden Kindergarten show that simple games such as throwing and catching balls in pairs can have a positive impact on early childhood gross motor development. The children looked active, enthusiastic, and showed improved coordination of movements after the activity was carried out regularly. The results of this observation can be explained through various theories of child development that affirm the importance of physical, social, and cognitive stimulation in early childhood.

According to Piaget's theory of cognitive development, preschool-age children are in the preoperational stage, where they learn through concrete activities and hands-on experience.(Main, 2021) The activity of throwing and catching the ball provides an opportunity for the child to experiment with his gestures, practicing coordination between the hands, eyes and feet. Through the process of assimilation and accommodation, children learn to adapt their movements to the direction of the ball and the position of playmates, thus strengthening their understanding of the cause-and-effect relationship between actions and results obtained.(Kurniawati, Sutarno, & Sariman, 2022)

From the point of view of Vygotsky's sociocultural theory, the activities of football also reflect the application of the concept of the proximal development zone (ZPD). The teacher acts as a guide who provides direction and support in the form of simple cues or instructions. This support functions as scaffolding that helps children achieve motor skills that cannot be done independently. Social interaction with teachers and peers also encourages children to learn through imitation and collaboration, so that the learning process becomes more meaningful and fun.(Mitchell, 2021)

In the perspective of Bronfenbrenner's developmental ecological theory, the success of this activity is inseparable from the influence of a supportive learning environment. Teachers, peers, and parents involved in providing simple facilities such as plastic balls are part of the micro system and mesosystem that interact directly with children. Although the limitations of tools and space are obstacles, teachers' efforts to improvise show the importance of environmental adaptation in supporting children's growth and development. Positive social and physical environmental factors are the key to the success of gross motor stimulation.(Bakhtiar, Lang, Shelley, & West, 2023)

In addition, Bandura's social learning theory can explain how children who were initially passive become more active in participating in activities. Children learn through observation of teachers and peers who participate enthusiastically. This modeling process allows children to imitate the behavior they observe and gain social reinforcement when they successfully perform the correct movements. Teacher support in the form of praise and emotional encouragement serves as a reinforcement that strengthens children's motivation to keep trying.(Bandura, 2024)

The development of motor skills in this activity can also be analyzed through the theory of the stages of motor learning proposed by Fitts and Posner.(Calof & Cekuls, 2023) Children are initially at a cognitive stage, where they try to understand how to throw and catch the ball. After several exercises, they enter the associative stage, where the movements become more subtle and errors are reduced. With regular exercise, the child begins to reach an autonomous stage, able to perform movements without the need to think consciously. This process is evident in children who initially struggled to catch the ball with confidence.(Sutarno, 2021)

Furthermore, the Schema theory developed by Schmidt provides an explanation of how variations of activities such as increasing throwing distance or playing in small groups help children build schema motors. Each experience of throwing and catching a ball in a different context enriches the child's memory of movement. They learn to adjust the power of the throw and the timing of the catch according to the situation. Thus, varied play supports the flexibility of children's motor skills.(Purwanti, Setiani, & Fakhruudin, 2024)

The dynamic systems theory put forward by Thelen and Smith (1994) is also relevant to understanding the findings of this study. A child's motor development is determined not only by biological factors, but also by the interaction between the child's tasks, environment, and body conditions. When children adapt to different ball sizes, limited space, or changes in pairs, their movement system adjusts dynamically. This shows that motor learning is a non-linear process that involves complex coordination between subsystems.(Kurniawan, Indahwati, & Ilmiawan, 2024)

In relation to Bernstein's theory of motor control (1967), throwing and catching a ball trains children to control degrees of freedom or freedom of movement in various joints and muscles of the body. Initially, the child may make stiff movements because he has not been able to control the coordination between parts of the body. However, through repeated practice, children learn to regulate movement patterns efficiently, maintain balance, and direct the ball appropriately. This process illustrates how motor control develops from a simple level to a complex coordination.(Ayuni, Hasibuan, & Suhairi, 2022)

In terms of intelligence, physical activities such as ball games help children understand the world through movement, not just through language or symbols. Children at Pertiwi Menden Kindergarten use their bodies as tools of thinking and communication, expressing emotions through fun play. This shows that kinesthetic activity-based learning can be an effective means of developing early childhood intelligence.(Taufiq & Sutarno, n.d.) Through soccer activities, children are given the opportunity to

take initiative, lead games, or become active partners. When teachers give praise for their children's success, their confidence and initiative grow. On the other hand, if the child is not given the opportunity to participate, there may be a sense of guilt or lack of confidence. Therefore, the role of teachers as motivators is essential to create a positive atmosphere in the game. (Al Mansur & Sutarno, 2022)

Teachers in this activity not only play the role of directors, but also as designers of learning activities that adjust the level of difficulty based on children's abilities. The flexible approach used by teachers is in line with the principles of constructivist theory, in which the child is considered an active learner who builds his or her own knowledge through real experience. Teachers who are sensitive to the individual needs of children can create a more adaptive and inclusive learning experience.

Teachers' efforts to improvise the means with plastic balls and boundary cones also reflect the ecological principle that small changes in the environment can have a big impact on a child's learning experience. Collaboration with parents in preparing simple play tools is part of a mesosystem system that strengthens family involvement in early childhood education. The success of football sports activities also shows the importance of positive feedback in the motor learning process. When children feel successful, they will be more confident to try new things, so that motor and emotional development are balanced.

Overall, the results of research at Pertiwi Menden Kindergarten show that the game of throwing and catching the ball is not just a physical activity, but also a means of learning that supports children's cognitive, social, emotional, and physical development holistically. This approach reflects the principle that children learn most effectively when they are actively engaged, socially, and joyfully in meaningful activities.

#### 4. CONCLUSION

Based on the results of the research and discussions that have been carried out, it can be concluded that sports activities of catching and throwing the ball are one of the relevant and effective methods in developing gross motor skills in early childhood. This activity provides an opportunity for children to perform movements that involve eye and hand coordination, strength and flexibility of large muscles, balance, and agility. This is important because gross motor development is the main foundation for children to be able to master other more complex basic movement skills at the next stage of development.

The game of catching and throwing the ball also has high relevance to the characteristics of early childhood who enjoy playing, moving, and learning through hands-on experience. Thus, this sport not only stimulates physical development, but also fosters confidence, concentration skills, as well as social-emotional skills such as cooperation, discipline, and sportsmanship. By looking at these results, it can be affirmed that the sport of catching and throwing the ball has strong relevance as one of the game-based learning strategies to support the holistic development of early childhood. Therefore, this activity deserves to be used as the main alternative in designing gross motor learning both in formal and non-formal education environments, as well as a reference for teachers, parents, and early childhood education practitioners in providing fun, effective, and meaningful developmental stimulation.

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