# Enhancing Children's Gross Motor Skills Through the Single Leg Balance Sandbag Game

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ABSTRACT:

Development motor rough child considered important, because If development motor rough child develop optimally then in a way No direct will influence behavior child daily. If growth physical and motoric child develop optimally, then activity motion child will become more ripe and more good . This research aims to to find out whether there is any influence game single leg balance sand bag on the gross motor skills of early childhood children . The research approach used is a quantitative approach with a Quasi Experimental research type which includes an experimental group and a control group. Data collection techniques include tests, observations, and documentation. Data analysis techniques used in study This is a descriptive data analysis and non-parametric statistical analysis with a population of 20. From the results of the non-parametric data analysis, it can be proven that the game single leg balance sand bag can has a significant influence on gross motor skills in children. Single leg balance sand bag game can affect gross motor skills in early childhood. This game can have a positive influence on children's gross motor skills. It is expected that with the Single leg balance sand bag game, children will be more enthusiastic in learning activities, can socialize well and develop more in children's gross motor skills

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1. Introduction

Children's education age early is development overall child or development personality child is focus main of this program . Personality and abilities child develop when they accept education child age early . Golden age is one of the the defining moment of childhood . As results from information revealed , some theory beginning about the golden age has proposed (Kurnia et al, 2022).

Children aged early is a period of development important to know as the "golden age", where the formation skills motor rough be one of fundamental aspects for support activity physical , balance and coordination body children (Barnett et al., 2016). Skills This No only play a role in ability physical , but also has correlation significant with development cognitive children (Piek et al., 2008).

Mahmud (2019) stated that that skills motor is capacity related individuals with performance in do various the skills he acquired since childhood . Skills This become foundation For do various task . Develop skills motor skills are very necessary children so that they can grow and develop optimally . In general There is two type movement motor , namely movement motor rough and movement motor fine .

According to Shi et al. (2024), development skills motor rough at age early , like run and jump , be base important for ability more motor complex . Gross motor skills proven relate direct with readiness child For start activity academic and social (Burns et al., 2022). Vestibular and neuromuscular systems own role significant in guard balance during activity motor rough (Wijnands et al., 2024). Flag rugby game has also been shown to effective increase fitness physical and skills motor rough child age preschool (Shi et al., 2024).

Game based on activity physique as Single Leg Balance Sand Bag is proven capable give effective stimulation in practice motor rough child age early (Hasanah et al., 2022). Previous research show that games involving element jump and guard balance can increase ability coordination children's hands and feet (Loprinzi et al., 2015). In addition , factors environment , such as interaction with Friend peers and roles educator , become element important supporter in development skills motor rough children (Venetsanou & Kambas , 2010).

Skills motor is a process of a person child Study For skilled move member body . For that , child Study from the teacher about a number of pattern movements that can they do what you can practice agility , speed , strength , flexibility , and accuracy coordination hands and eyes . Develop skills motor skills are very necessary children so that they can grow and develop optimally (Rusmayadi et al., 2021). Skills motor rough covers ability physical involving muscle big For do activity like jumping , running , and guarding balance (Burns et al., 2022). A study by Robinson et al. (2015) indicated that competence motor rough contribute to improvement activity ongoing physical health in children. skills are one of the most important aspects of development for early childhood. Research conducted by Hernandez & Cacola (2015) states that there is a significant relationship between gross motor development and cognitive. Another study states that there is a relationship between gross motor skills and children's readiness to enter school.

Focusing on the development of gross motor skills such as walking, running, jumping and throwing from preschool age to acquire and establish stable 'motor units' is very important for the acquisition of advanced motor skills in the future. The single leg balance sand bag game and uses the basic movements of, jumping, straddling, and throwing(Shi et al., 2024).

Gross motor skills are skills to move from one place to another or perform physical activities that involve large muscles of the arms and legs. Gross motor skills are physical movements that require balance and coordination between body parts, using large muscles, some or all of the body parts. Examples include walking, running, jumping and so on (Suri et al., 2010) . Gross motor skills are considered to be an important correlate and have also been found to be longitudinally associated with weight status. Gross motorbike fundamentals skills are building blocks for more advanced and complex movements, and they consist of locomotor skills (eg, running, jumping, hopping) and object control/ball skills (eg, throwing, catching, kicking). Complex movements needed for sports participation and leisure PA require a level of motor competency, defined as the ability to perform gross motor skills (Burns et al., 2022).

Benefits of gross motor skills according to (Sulistiawati, 2017) by doing Gross motor activities are expected for children to be able to carry out these activities involves coordinating most parts of the child's body as for the benefits of development of children's gross motor skills, namely: (a) can improve skills movement, (b) able to maintain and improve physical fitness, (c) can instill an attitude of self-confidence, (d) able to increase cooperation, (e) capable behave in a disciplined, honest and sportsmanlike manner. Endang Rini Sukanti (2018) explains that gross motor skills have. The benefit is to help children gain independence, apart from that, it is also beneficial to help children gain social acceptance. Meanwhile, according to (Alfainy, 2022), the benefits of gross motor development in early childhood are: a) Able to improve motor skills b) Able to maintain and improve physical fitness c) Able to instill self-confidence d) Able to work together e) Able to behave in a disciplined, honest and sporty manner. Therefore, it is important for children to have sufficient opportunities to participate in various gross motor activities to support their overall physical, cognitive, social, and emotional development.

Another study stated that there is a link between gross motor skills and children's readiness to enter school. Gross motor skills are part of the aspects of balance, strength, flexibility, speed, agility, which are a trigger for one of the sports activities, or activities that train the physical . Gross motor skills are activities that use large muscles, including basic locomotor, non-locomotor and manipulative movements, all of which must be considered by parents so that children's development and growth can develop optimally (Kurnia R, 2023). Gross motor skills are related to movements that require coordination of body parts, muscles, and nerves. Skills motor rough *(gross motor skills)* , including skills muscles big arms , legs, and trunk body , such as walk and jump (Arifiyanti et al., 2019) .

Forms of play activities that can improve gross motor skills must contain activities such as running , walking, or jumping that require large muscles. Games are one of the means of improving children's gross motor skills. Gross motor skills are skills that involve large muscle activities, such as walking, jumping, running and moving the arms. (Tangse & Dimyati, 2021) . Games are one of the means of improving children's gross motor skills.

Game Single Leg Balance Sand Bag is a games that are capable develop skills motor rough children and capable optimize balance physique children . Games This can given to child , because game This child move all over member body and train dexterity , strength use For optimize skills motor rough child . Giving exercise strengthening muscles child This intended For get used to children to be able to do it with good and measure skills child (Munawaroh, 2017) .

Balance impairments during one-leg-standing and one-leg-hopping can be explained by a lot of factors. Many systems contribute to an individual's balance such as the visual, vestibular, nervous and musculoskeletal systems. The musculoskeletal systems contribute to balance, specifically, the control of body sway, which is typically measured by tracking deviations in center of pressure (Wijnands et al., 2024).

Game *single leg balance sand bag* can influence skills motor rough on children . With game *single leg balance sand bag,* child more Spirit in activity learning , can socialize with good and more develop in skills motor rough children . Activities game *single leg balance sand bag* is activities that provide Lots mark positive to child . Influence game *single leg balance sand bag* against skills motor rough child can concluded that game this is very close the relation with skills motor rough child.

2. Method

Study This use approach study quantitatively, with the aim of measuring the influence of *the Single leg balance sand bag* on the gross motor skills of early childhood. The type of research used researcher in study This is *Quasi-experiment* or experiment quasi- experimental design , because researchers want to gain knowledge and information by using numerical data as a tool to analyze information about what they want to know. This *quasi-experimental* design have class control but No functioning fully For control variables external influences implementation , experiment type This used For know influence game *Single leg balance sand bag* to skills motor rough child aged 5-6 years at the Pembina Bowong State Kindergarten Cindea is given treatment method Experiment . *Quasi experiment research* there is class control and class experiment . This method intended For know How problem related physique motor rough children at the Pembina Bowong State Kindergarten Cindea .

Variables

This research to study two variables , namely skills motor rough children and play game *single leg balance sand bag.* Game *single leg balance sand bag* is variable free or influencing and skills motor rough child as variable bound or influenced .

Sample

Research sample This determined with purposive sampling technique . Sampling sample in study This use formula slovin and based on the data above amount sample amount sample to be used namely 20. With 10 children as group experiment and 10 children as group control .

Data Collection

Form technique data collection in study This are Test methods , Observation methods and documentation. Data analysis techniques are used For analyze the results data improvement skills motor rough child before and after given treatment .

Data Analysis Techniques

Data analysis techniques used For analyze the results data improvement skills motor rough child before and after given treatment.

Tablel. 1 Assessment Scale

Category	Mark
BB	1
MB	2
BSB	3
BSH	4

Information:
BB: Not Yet Developed
MB: Starting to Grow
BSH: Developing As Expected
BSB: Developing Very Well

Data analysis techniques used that is technique analysis statistics descriptive is the approach used For examine the data with objective describe or explain information collected , without business make conclusion general or generalization . Analysis statistics descriptive This will run with use device SPSS 26 software . Analysis results statistics descriptive will presented in form distribution data frequency and calculated use SPSS 26 application. Non -parametric statistics is part from method statistics inference that is not discuss (pay attention to) population parameters such as mean (μ), standard deviation (σ) and so on (Wulansari, 2016). This test test will done through device SPSS 26 software with mark significant $\alpha = 0.05$.

3. Result

Game *single leg balance sand bag* is game modification from buffet traditional hopscotch . Game This designed For child age 5-6 years For increase skills motor rough children . Games This *single leg balance sand bag* show significant results in children For skills motor roughly speaking . The purpose of game This *single leg balance sand* is for children can guard his balance , jumping with strong , and coordinated movement hands and feet.

Implementation *pre-test* done 1 time for purpose For know description ability skills motor rough child before given treatment . Research results about ability skills motor rough child before done treatment with game *single leg balance sand bag* . Here This served table ability skills motor rough child before done treatment with activity practice direct .

Tablel. 2 Children's Gross Motor Skills Abilities
Before Being Given Treatment (Pre-test) in the Experimental Group

No.	Category	Frequency	Presentation
1	Not Yet Developed (BB)	7	70%
2	Starting to develop (MB)	3	30%
3	Develop As Expected (BSH)	0	0%
4	Very Well Developed (BSB)	0	0%
	Amount	**10**	**100%**

Based on table above , can known that in the *pre-test* given to the group experiment For know ability skills motor rough children , there are 7 children who are capable skills motor roughly Still in Undeveloped category (BB) with percentage 70%. 3 children whose abilities skills motor roughly Still in Starting to Develop (MB) category with percentage 30%. There is no child with ability skills motor roughly Still in category Develop As Expected (BSH) with percentage 0%. And 0% of children whose abilities skills motor roughly in category Very Well Developed (BSB).

Research result This in line with findings of Foulkes et al. (2015), which showed that activity based on game increase balance and agility motor rough child . Analysis statistics show improvement significant in the group experiment compared to group control , support effectiveness Single Leg Balance Sand Bag game (Burns et al., 2022).

Table.3 Children's Gross Motor Skills Abilities
After Being Given Treatment in the Experimental Group (Post-test)

No.	Category	Frequency	Presentation
1	Not Yet Developed (BB)	0	0%
2	Starting to develop (MB)	0	0%
3	Develop As Expected (BSH)	5	50%
4	Very Well Developed (BSB)	5	50%
	Amount	**10**	**100%**

Based on table above , can known that in the *post-test* given to the group experiment For know skills motor rough child , no there is child with ability skills motor rough Still in Undeveloped category (BB) with percentage 0%. There is no child with ability skills motor rough Still in Starting to Develop (MB) category with percentage 0%. 5 children whose abilities skills motor rough enter in category Develop As Expected (BSH) with percentage 50%. And 5 children whose skills motor rough child enter in category Very Well Developed (BSB) with percentage 50%.

Table.4 Frequency Distribution of Gross Motor Skills Ability
Before Treatment (Pre-test) in the Experimental Group

Category	Frequency	Presentation
Not Yet Developed (BB)	7	70%
Starting to develop (MB)	3	30%
Develop As Expected (BSH)	0	0%
Very Well Developed (BSB)	0	0%
Amount	10	**100%**

Based on table above , can known that in the *pre-test* given to the group experiment For know skills motor rough children , there are 7 children whose skills motor roughly Still in Undeveloped category (BB) with percentage 70% because of the 3 indicators tested that is do ability jump , ability guard balance and ability coordinate movement child's hands and feet Not yet capable show it . Then there are 3 children with skills motor rough Still in Starting to Develop (MB) category with percentage 30% of 3 indicators do ability jump , ability guard balance and ability coordinate movement child's hands and feet Still with help researcher /teacher. Then No there is child with skills motor rough child in Starting to Develop (BSH) category with percentage 0% of the 3 indicators tested that is do ability jump , ability guard balance and ability coordinate movement child's hands and feet do without help researcher /teacher and can help his friend . And not there is child with skills motor rough in category Very Well Developed (BSB) with percentage 0% of the 3 indicators tested that is do ability jump , ability guard balance and ability coordinate
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movement child's hands and feet do without help researcher /teacher and can help his friend.

Table. 5 Frequency Distribution of Children's Gross Motor Skills
After Being Given Treatment (Post-test) in the Experimental Group

Category	Frequency	Presentation
Not Yet Developed (BB)	0	0%
Starting to develop (MB)	0	0%
Develop As Expected (BSH)	5	50%
Very Well Developed (BSB)	5	50%
Amount	**10**	**100 %**

Based on table above , can known that in the *post-test* given to the group experiment For know skills motor rough child , no there is child who has skills motor roughly Still in Undeveloped category (BB) with percentage 0% because of the 3 indicators tested that is that is do ability jump , ability guard balance and ability coordinate movement hands and feet. Then No there is child with skills motor rough Still in Starting to Develop (MB) category with percentage 0% of the 3 indicators tested that is do ability jump , ability guard balance and ability coordinate movement hands and feet. Then there are 5 children with skills motor rough child Still in category Develop As Expected (BSH) with percentage of 50% of the 3 indicators tested that is do ability jump , ability guard balance and ability coordinate movement child's hands and feet Already capable do it without help researcher /teacher. And there are 5 children with skills motor rough in category Very Well Developed (BSB) with percentage of 50% of the 3 indicators tested that is do ability jump , ability guard balance and ability coordinate movement child's hands and feet do without help researcher /teacher and can help his friend .

Research result about skills motor rough child before and after given activity practice direct can seen in the table distribution frequency results implementation *pre-test* and *post-test* group control following This :

Table. 6 Data Analysis of Pre-test and Post-test of Children's Gross Motor Skills In the Experimental Group

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pre-Test Experiment	10	12.00	14.00	12.8000	.91894
Post-Test Experiment	10	20.00	23.00	21.4000	1.17379
Valid N (listwise)	10				

Based on table on obtained group average value experiment before given treatment that is of 12.80 while after given treatment the average value to 21.40. With thus has happen average increase in the group experiment that is of 8.6. So it can be concluded that game *single leg balance sand bag* give influence on skills motor rough child.

Signed *rank test* on groups experiment used For see influence from the treatment given that is with game *single leg balance sand bag* with compare and see difference between the *pre-test* and *post-test* data . While the *Wilcoxon* test on the control group control used For see influence from the treatment given that is with game hopscotch with compare and see difference between *pre-test* and *post-test* . The criteria are the occurrence change that is if sig value . (2-tailed) < 0.05 and if sig. (2-tailed) ≥ 0.05 then No happen change after given treatment . Here table Wilcoxon skill test results motor rough children in groups experiments and groups control :

Table.7 Results of the Wilcoxon Test of Children's Gross Motor Skills

Ranks

		N	Mean Rank	Sum of Ranks
Post-Test Experiment - Pre-Test Experiment	Negative Ranks	0 [a]	.00	.00
	Positive Ranks	10 [b]	5.50	55.00
	Ties	0 [c]		
	Total	10		
Post-Test Control - Pre-Test Control	Negative Ranks	0 [d]	.00	.00
	Positive Ranks	9 [e]	5.00	45.00
	Ties	1 [f]		
	Total	10		

a. Post-Test Experiment < Pre-Test Experiment

b. Post-Test Experiment > Pre-Test Experiment

c. Post-Test Experiment = Pre-Test Experiment

d. Post-Test Control < Pre-Test Control

e. Post-Test Control > Pre-Test Control

f. Post-Test Control = Pre-Test Control

Test Statistics [a]	Post-Test Experiment - Pre-Test Experiment	Post-Test Control - Pre-Test Control
Z	-2.823 [b]	-2.673 [b]
Asymp. Sig. (2-tailed)	.005	.008
a. Wilcoxon Signed Ranks Test		
b. Based on negative ranks.		

In the table on related *Wilcoxon* test results skills motor rough child For group experiment show that of -2.823 and the sig. value (2-tailed) of 0.005 < 0.05, so that can concluded that there is difference skills motor rude to the group experiment before and after given treatment .

Wilcoxon test results on related skills motor rough child For group control show that of -2.673 and the sig. value (2-tailed) of 0.008 ≥ 0.05, so that can concluded that No there is difference skills motor rough children in groups control before and after given treatment .

Through the *Wilcoxon* test that has been done in groups experiments and groups control can concluded that the treatment given For group experiment influential to skills motor rough child . So that game *single leg balance sand bag* give impact or influence positive and effective to improvement skills motor rough child age 5-6 years.

4. Discussion

The data results show that study before given game *single leg balance sand bag* in group experiment own average value of 12.8 and after given game single leg *balance sand bag* average value to 21.4. With thus has happen average increase in the group experiment that is of 8.6. So that can it is said that game *single leg balance sand bag* give influence to skills motor rough child with apply 3 indicators that is do ability jump , ability guard balance and ability coordinate movement hands and feet. Statement This proven from analysis test results statistics descriptive and statistical tests parametric the result of which is show that the average score ability motor rough children in groups experiment increase and occur significant changes compared to ability motor rough child before given single leg balance sand bag game .

The data results show that study before given game hopscotch in groups control own average value 10.2 and after given game *single leg balance sand bag* the average value to 13.1. With thus has happen average increase in the group control that is of 2.9. So that can it is said that game hopscotch give influence to skills motor rough child .

This matter in line with research that has been carried out (Kendal., 2022) which states that game hopscotch Alone give influence positive to skills motor rough child age 5-6 years , for example like child capable do motion physique in a way coordination , child agile in jump One or two legs with balanced , and children capable strategize with Good .

Skills motor rough child how the good thing is developed since age early , because will influential to growth and development . For practice motor rough child need stimulus with existing learning models . Game *Single leg balance sand bag* Alone give influence positive to skills motor rough child age 5-6 years for example like child capable do motion physique in a way coordination , child agile in jump One or two legs, child capable guard balance , child capable collaborate and communicate with his friends and so on (Hasanah et al., 2022).

Game based on coordination like single leg balance sand bag effective Because involving Lots aspect development motor in a way simultaneously (Wijnands et al., 2024). Improvement ability motor rough on children correlated positive with fitness physique term length (Burns et al., 2022). This study support study previously that stimulation motor rough need customized with stages development children (Hernandez & Cacola , 2015). Game with element balance help increase postural stability of the child , which is important For activity academic and social (Wijnands et al., 2024). Intervention like single leg balance sand bag in line with trend learning based on game For development motor rough children (Shi et al., 2024).

4. Conclusion

Based on the data obtained , you can concluded : Based on the data obtained, it can be concluded that the gross motor skills of children aged 5–6 years at the Pembina Bowong State Kindergarten Cindea showed significant improvement after the implementation of specific motor skill-enhancing games. Before introducing the single-leg balance sandbag game, the gross motor skills of the children were classified as low. However, following the intervention with this game, the children's gross motor skills improved substantially, elevating to a high classification. Similarly, before the introduction of the hopscotch game, the children's gross motor skills were also classified as low. After participating in this game, their skills showed enough improvement to indicate a positive impact, though not as pronounced as the improvement seen with the single-leg balance sandbag game.

This data demonstrates that the single-leg balance sandbag game had a more significant influence on the development of gross motor skills in children compared to the hopscotch game. These findings highlight the effectiveness of targeted, engaging activities in improving children's physical capabilities, particularly their gross motor skills. Such interventions can play a vital role in early childhood education, fostering better physical development and promoting active learning through structured play.

5. Acknowledgement

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