

Do Over-Active Kids Have Different Gross Motor Skills?

Eka Hani Widayarsi
 Postgraduate School
 Yogyakarta State University
 Yogyakarta, Indonesia
 ekahaniw@gmail.com

Panggung Sutapa
 Postgraduate School
 Yogyakarta State University
 Yogyakarta, Indonesia
 panggung_s@uny.ac.id

Abstract—This study describes whether there is any effect of physical activity in the form of a relay game on gross motor abilities in children with overactive. Over-active is some of part indication for ADHD. This journal will discuss only children who are over active because over active can be seen in plain view when researchers make observations. Over active is one indication ADHD is expected through relay games can see the gross motor skills of early childhood Through physical activity, especially the game relay expected the child with over-active can exhaust excessive movement when trying to concentrate. This research uses descriptive kuantitatif method. Data collection in this study uses the observation method. Observations were carried out twice by measuring the speed of the child completing the relay game. After knowing the gross motor skills of overactive and regular children through numerical data with a stopwatch, a description will be given. The description given is adjusted to the data in the field without any additional or treatment from the researcher. the researcher only applies as an observer.

Keywords—physical exercise, motor skills, over-active

I. INTRODUCTION

ADHD is a neurodevelopmental disorder that can be seen through improper developmental symptoms through low attention, impulsivity, and over-active, occurring for at least 6 months or at least two life domains and beginning to be observed before the child reaches the age of 7 years American Psychiatric Association [1]. Improper motor skills can make children with ADHD have a weak risk in self-concept, anxiety, and lack of social interaction Ayaz, *et al.*, [2]. other things will affect the lack of ability physical and fitness. Pan, *et al.* [3], showed that children with ADHD showed worse performance of motor and cardiovascular skills than the usual (TD) of developing children, at baseline. Social and behavioral deficits associated with ADHD as well as impaired motor skills can clearly affect a child's ability to reach his potential.

ADHD children certainly need care for their daily activities. The proven thing to help with ADHD child care is with medication and behavioral therapy of the child. Although the above ADHD treatment has been obtained by the child, not all children may receive a good response to treatment with any such therapy [4]. Sometimes there are some parents who do not care with drugs because of doubts about their safety. There are also some parents who do not counsel for child behavioral therapy because the therapy takes a lot of time and expensive expenses. Because both of these should have special strategies that can be done by families, schools and

individuals themselves to be able to manage emotions for everyday life. Over active is one of the characteristics of ADHD but not necessarily overactive children are ADHD children. This journal will discuss only children who are over active because over active can be seen in plain view when researchers make observations

Physical exercise can be an exciting innovative therapy. The way to be done for ADHD until now there is no provision that the patent with certainty. In particular, physical exercise helps therapy for behavior as well as cognitive enhancement through increased levels of neurotransmitters (eg, dopamine, sero-otonin, norepinephrine) and neurotrophin (eg, brain-derived neurotrophic factors). Although tested but physical activity can be used for brain health in a way that complements the current therapeutic approach in ADHD treatment.

Chang, *et al.* [5], examines the impact of acute aerobic exercise on executive function in children diagnosed with ADHD. Previous research has also shown positive things for DHD children through the physical activity of table tennis. Therefore researchers want to know whether the physical activity of the relay games will give the same impact. According to Wiarto in [6], the Relay is an exercise performed by giving a stick from one place to another. In a race run race, runners run at full speed by moving the stick to the next runner. This is reinforced by research that shows that playing relay able to improve motor ability of children, especially children aged 5-6 years [7]. Over active is one indication ADHD is expected through relay games can see the gross motor skills of early childhood.

Relay games should be done in groups. But the number of individuals in the group can be mutually agreed upon. The average number of person in the group is 3-5 children. Relay games have standard rules, but can be developed as needed and tailored to the age of the player. Due to this game done with group form then cooperation is very important when doing this game. According to Wiarto [6], the Relay is an exercise performed by giving a stick from one place to another.

After a rule is given then one group must be compact and have the same understanding for the given rule. If members in the relay group have different thoughts then the relay game will not go smoothly. Running relay is one of the most fun activities in athletics, it was revealed by [8]. Besides the game relay is not only done outside the room. Relay games can also be done indoors. Also in a team needed trust each other. The relay game can also be called a running race, in which the runner runs at full speed to give the stick to the next runner in

his. Therefore the game relay is a game of athletics in a very fun group and can train the muscles in children.

Below are several things that need to be prepared for a relay game Achey, *et al.* in [9]:

- Choose a play location, if outdoors will be better because the child will be more liberal.
- Eliminate things or objects that can disturb the course of the relay game especially near the relay game area.
- Explain first the rules when playing the relay if possible should be given examples as well so that children know the rules right there.
- When giving a limit or a stop place on the circuit should be clear as well.
- Make sure children get enough food and drink so as not to lack energy.

Here are the steps to play the relay that should be done:

- The child stands where the teacher provides, then the teacher explains the rules of the game while demonstrating how to play. Activity of the child in play signify the child understands the rules in the game that is, the child must cooperate in moving objects from one place to another according to the time the teacher specify.
- The child is divided into several groups of 5 children, each child cooperating in the game according to the rules. For example, the child must be in a designated place until the game ends, the child moves the objects one by one, and so on
- The child competes to move objects from one place to another quickly and accurately by handing them from one child to another according to different rules in each meeting. For example a child must move objects by jumping, squatting, throwing, and so forth
- After the time ends, the teacher asks questions to each child in the group to know the development of symbolic thinking in children such as asking the child to mention the number of objects successfully transferred, mentioning the order of the symbols of the numbers 1-10 on the object being moved, and so on.

Rough motor skills to be a provision for the child's stock of children because through this ability the child's muscles can develop according to his age. When the child's physical well then the child will be ready to receive stimulation for other aspects of development for him. Santrock in [10] reveals that rough motor skills are skills that involve great muscle activity, such as for the feet and hands. In accordance with previous theories Williams in [11] describes gross motor skills of the whole body in an activity involving large muscle groups and that require spatial coordination. This movement relies on coordination in the body [12]. Rough motor is a movement by using large muscles with good coordination of the body. The rough motor movements that a child usually performs when playing are running, running, jumping, kicking, throwing, hitting, pushing, and pulling. The movement is usually done unconsciously by the child when playing. In accordance with the disclosed [13], that rough motor movement consists of body muscles are composed of striated muscles that serve to perform basic movement of the body that serves to perform the basic movement of the body is coordinated by the brain.

Measuring gross motor skills of young children can use gross motor elements. Elements of gross motor skills according to Sujiono, *et al.* in [12] are strength, endurance, speed, agility, flexibility, coordination of accuracy, and balance. In line with argues that there are five motor elements, namely balance, coordination, speed, agility, and strength. Point for measuring in this journal is speed. The ability of limbs to perform short and continuous movements and is determined by successive movements of the limbs quickly. As an example of the throwing motion of the ball which is determined at the short or not the arm in the distance of throwing [14]. Speed is the ability to move from one place to another in the shortest time. Speed is cyclic (one type of motion that is carried out repeatedly like running). Speed is important not only for children, especially when they play at school or at home as well as those who have grown up to maintain their mobility.

One of the games that can stimulate is the relay game. Relay games can be categorized as a game that is a physical activity. According to a pre-existing study proves that the game of the relay can improve gross motor skills. This is reinforced by research conducted by Suparno, et al [7], a relay game has a very significant effect on gross motor child. Thus the relay games can affect gross motor skills for early childhood. Because based on previous research applying physical activity such as aerobics and table tennis can affect the motor skills of children with ADHD. The relay game is a physical activity. Therefore it can be said that the game relay is a physical activity that can affect the motor in children with ADHD.

In previous studies it has focused primarily on aerobic exercise or the characteristics of quantitative exercise (ie intensity, duration, and frequency). Therefore, for this study, we developed physical exercises involving motor skills training, the element of speed through a relay game program. Researchers use the game relay because there are several things.

Based on limited data available from previous studies, we hypothesize that children with ADHD who participate in a table tennis training program will show improvement and result in greater positive changes in motor skills and executive function than those who do not participate in the intervention. Therefore in this study researchers want to know whether with other physical activity, the game relay can show a positive as well as previous research. The hope is that through the game the relay can have a positive effect on the motor skills of over active children.

The rest of this paper is organized as follow: Section II describes the material and proposed methodology. Section III presents the obtained results and following by discussion. Finally, Section IV concludes this work.

II. MATERIAL & METHODOLOGY

This section presents the material used and the proposed methodology.

A. Data

Data obtained in this study through observation. All activities carried out for research needs will be observed by researchers. when observations researchers are not allowed to give action to children. Observation is a complex process, a

process composed of various biological and psychological processes [15]. Therefore according to Sugiyono in [15] data collection techniques with observation are used if, research concerning human behavior, work processes, natural symptoms and if the respondent observed is not too large. When observing researchers only see the speed of the child. Researchers collect data by counting using a stopwatch. The study was conducted for two days, in one day the child will perform relay games three times. After seeing the speed results from the stopwatch, you will see the average time available. After all data using speed is carried out, the researcher will do the description. The description will use the reference from the observation using the stopwatch. Through these observations can be known the speed of children in groups.

B. Method

This journal uses quantitative descriptive research methods. Quantitative descriptive research describes a condition as it is. Researchers will only observe and see how the relay learning process takes place. After that the researcher will record all the activities carried out and the results. After the researcher calculates the quantitative use it will be described through the sentence. When research researchers are not allowed to treat students. This method is used by researchers because it corresponds to the subject to be studied, namely in the form of a game. Previous research used is a study that has the theme of physical activity, motor skills, relay games, and overactive children. Through the previous research the researchers concluded that physical activity in the form of a relay game can affect motor skills in ADHD children.

III. RESULTS AND DISCUSSION

The study was conducted for two days and on one day relay games were held three times. Children are divided into two groups. Group A is overactive children. Then the group of B members is quiet children. To determine the overactive child, we asked the teacher who was teaching first. Each group has 5-6 people. The number in groups is adjusted to the number of children present on the day. The following are observations using the stopwatch on the first day of research. To determine the child overactive, the researcher asks the teacher who teaches first. Each group has 5-6 people. The number in the group is adjusted according to the number of children present on that day are shown in Table I below :

TABLE I.

Trial	Time (in second)	
	Group A	Group B
1	30	44
2	34	46
3	32	36
Avg	32	42

Through research above group A, it is faster to complete activities than group B. In addition, researchers use relay game activities conducted.

TABLE II

Trial	Time (in second)	
	Group A	Group B
1	32	34
2	33	33

3	26	27
Avg	30.3	31.3

From the Table II above, second study the speed of group A remains the same, which is faster. When researching the second day the results of relay activity speed were almost the same. The difference between groups in the study was very small and very thin. Speed is the main benchmark in this study. Speed is measured using a stopwatch. Through the research that has been done it can be concluded that groups with over active children will have gross motor skills which are viewed from a better speed compared to groups consisting of regular children.

IV. CONCLUSION

This study provides rough motor knowledge for ADHD children, namely: (1) Motor ability of ADHD child can be stimulated by physical activity; (2) A relay game can stimulate a child's abusive motor skills; (3) The relay game is a physical activity; (4) Relay games can stimulate the motor skills of overactive; (5) Groups that consist of overactive children will tend to be faster after relay activities than regular children; (6) Through this study, it can be concluded that overactive children are faster at physical activity; (6) Therefore, overactive children have better gross motor skills than regular children.

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