



Physical Activity and Static Balance on Early Childhood

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Abstract

This study aims to determine the effect of physical activity program on the ability of static balance in early childhood. This research used experimental research method. Research populations are 5 year old preschool children. 10 children in TK ABA Sermo, Sleman, Yogyakarta used as sample. The sampling technique used the total sample. Data analysis technique used t-test. The results obtained t count 10,23, and t table price 1.86. Based on the comparison between t count arithmetic with t table it can be concluded that physical activity has influence on static balance ability at early childhood in TK ABA Sermo.

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INTRODUCTION

The development of good motion in early childhood depends on their physical activity. Beside the good nutrition factor, physical activity is a crucial factor in children development stage. Outdoor activities give positive effect on children health and social development. (Bento & Dias, 2017). The fact, early childhood nowadays tend to watch TV and even use gadget. This tendencies cause laziness to do outdoor activities. Children who are lazy to do physical activity tend to have emotional problem because their energy is not used and their emotion is not transmitted through playing activity with their friends and they also can more easily get disease (Shi et al., 2014). This theory agrees with (Vazou et al., 2017) stated that through planned physical activity, children can transmit and control their emotion. Beside low ability in controlling their emotion, children who do not have enough playing time tend to have less cognitive ability than those who have enough playing time. (Tandon et al., 2016). This statement is supported by (Abdelkarim et al., 2017) and (Higashionna & Iwanaga, 2017), stated that there is a positive relation between sufficient physical activity with the development of children cognitive ability.

Lazy children tend to get easily insulted and they tend to have bad balance ability. They can fall down easily and when they fall they get angry and often blaming others. (DavidK.Miller, 2006) Balance is an important aspect in life. When people move, they need both static and dynamic balance. Balance is a stable body position and it can keep the stable condition from energy outside the body and gravitation. Good balance ability has correlation with ability of motion perception in early childhood. Motion perception is the ability in understanding space, time and objects around the body. Motion perception is one of the important steps that needed to be developed and trained for children. (David L. & Gallahue, 1998). One of the elements of motion perception is balance.

Balance is one of the motiont ability that is the base of motion perception ability, balance need to be initially good before we are capable of motion perception ability. Good balance ability need to be trained, moreover with the condition of children playing environment development nowadays that less supportive. (Moraru, Neculae, & Mihaela, 2014). Ideally, the environment near the house needs to be safe for children to play. Sadly, because of the development of IT, parents often give gadget for children to play game with.

The result of this behavior is children being lazy to move and their motion development is disturbed, mainly their balance ability. Planned physical activity will help children balance ability. (Abdel et al., 2015).

This problems need to be studied more to find out the importance of physical activity in supporting children motion development. The form of physical activity is balance exercise in early childhood. This study aims to determine the effect of physical activity program on the ability of static balance in early childhood.

METHODS

This research used quasi experiment (Ted A. Baumgartner, 2013), pre test data is compared to post test data. Data collection uses static balance test. Instrument uses static balance test Stork Stand Balance from Johnson and Nelson (DavidK.Miller, 2006). Sample of this research uses ten 5 year old children, six boys and four girls from TK ABA Sermo. Before treatment, childrens balance will be tested. After pre test, children will be given treatment of planned physical activity for 5 weeks with 3 days per week. After treatment done, the post test will be given, it is a balance test. Data analysis technique uses t test. Before t test is done, data normality test uses Lilliefors test. Homogeneity variants test uses F test.

RESULTS AND DISCUSSION

Here is the pre test and post test data from this research, presented in **table 1** bellow,

Table 1. Research result

n	Pre Test	Post Test
1	3,01	7,9
2	3,3	7,5
3	3,55	7,8
4	2,89	6,45
5	4,25	8,9
6	2,75	5,75
7	2,5	6,5
8	3,8	7,5
9	3,35	7,9
10	3,5	6,9
Total	32,9	73,1
Mean	3,29	7,31
sd	0,522	0,915

Based on **table 1** above, we can see that the pre test data average was 3,29 with standard deviation 0,522. The post test data average was 7,31 and standard deviation 0,915. After acquiring averages and standard deviation from pre test and post test data, the next step was testing prerequisite analysis, it is data normality test and data homogeneity test. Bellow is the normality test, homogeneity variants test and t test result from both data;

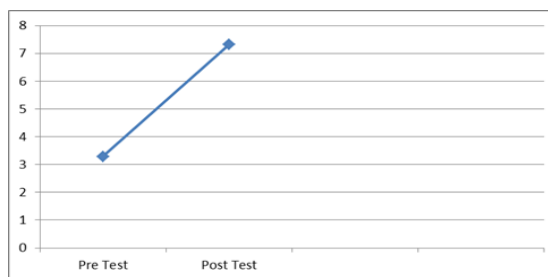
Table 2. result of last data normality test

Statistic Test	Count	Table	Result
Normality	L = 0,1611	L= 0,271	Normal distribution
Homogeneity	F hit = 3,08	F = 5,35	Homogen
t	t hit =10,23	t =1,86	Significantly different

Based on **table 2** above, we can see L count is less than L table. Based on this calculation, we can conclude that data distribute normally. Next, homogeneity variants test F count was 3,08 and F table was 5,35. F count is less than F table. Based on this calculation we can conclude that the data is homogen. Data was distributed normally and had homogen variants, prerequisite analysis test has been done, after that t test will be done, t calculation showed that t count was 10,23 and t table was 1,86. T count is bigger than t table. Based on this calculation we can conclude that both of this data have significant difference.

DISCUSSION

Based on the result of t test, we can see t count 10,23 and t table 1,86 with level of significance 0,05. Based on this calculation we can conclude that there is significant difference between the ability of children balance before physical activity exercise and after. The development of children balance ability gives the effect of the rising of muscle strength and endurance. (Mohammadi et al., 2012). The development of muscle strength and endurance takes place in lower part of body. Physical activity in early childhood has given positive effect to early childhood, it is the ability of balance that can be seen in the picture bellow;



Picture 1. The comparison between pre test and post test

Based on the picture above, it is clear that there is exclamation between children balance ability before and after doing planned exercise. This exclamation shows that physical activity has given positive effect to children development mainly on the ability of balance. It is supported by (Moraru,Neculae, & Mihaela, 2014), stated that active children tend to be more balance than the pasive one. (Ellis et al., 2017) stated that children with more physical activity than those who less active, have more ideal body. This statement reveal that children with more sitting and standing than children who likes to play have tendency to be more fat.

Early childhood period is a critycal time for children, this period can be said as the golden time for children because if someone wants to acquire something optimal, this person needs to be trained since early childhood period. Why early childhood period? Because in this period, study process of children is started. Children started to receive various information from outside to develop individual skill. Along with development process of children that support to acquire new experiences that suitable with the age. Social, emotion and physic of children develops optimally when children play in supportive environment. Children social development can be more optimal when children play outside (the home) (Bento & Dias, 2017).

In early chidhood, motion experiment is dominant enough to influence the development of children. Sufficient physical activity gives optimal contribution in children coordination ability (Wilson et al., 2010). Through sufficient motion experience, it can give repairation for children who has problem in coordination (Prunty et al., 2016). Through physical activity, children can get sufficient motion experinece. This motion experience can be acquired from playing activity, and playing is children world. By playing, children can get what they need, like socialization needs wiith environment, recognition needs, self expressed needs, motion ability

development needs, motor perception needs that related with cognitive ability, etc (Shim et al., 2013). Children will get what they need when they grow up. Because when they are grown up, they need to be ready with the ability to help themselves and face any kind of problems they have, here come the importance of playing as the exercise to solve the problem.

Many needs can be expresses through playing activity, it is a positive thing for children development mainly for receiving achievement in their golden time. The peak achievement in motion skill. Moton skill can increase if children are given regular and measurable playing time or through well planned program. Well planned program need to be appropriate with children development stages, in making physical activity program for children, teachers and parents need to consider the difference between individual. Because every child has individual speed of development. (Petkov & Grebennikova , 2016). Besides, parents and teachers must always give evaluation to activity that given to the children. Evalaution will fasten children understanding of activity tha is done precisely. (Bouyer et al., 2016).

One of the development of early childhood is motor perception development. In motor perception, there is element of kinesthetic understanding that is balance. Based on the opinion above, the balance between children is different in the development. To harmonize it, physical activity form in every child need to be suitable with development level of children. (Halford et al., 2002) and (El-gohary et al., 2017). Through planned physical activity will be acquired balance development between one child to another.

CONCLUSION

Based on the result of this research, we can conclude that there is influence of physical activity in static balance in early childhood.

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