International Journal of Recent Technology and Engineering (IJRTE)
ISSN: 2277-3878 (Online), Volume-8 Issue-4, November 2019

"Go Boy" Traditional Games to Improve Cardiovascular Endurance for Handicapped Children in Bengkulu Indonesia

Dian Pujianto, Syafrial, Bayu Insanistyo

Abstract*: This study examines the role of physical activity "Go Boy" in children with special needs, in aspects of physical fitness. This research is development research. The subjects of this study were children with special needs in the city of Bengkulu who attended the SLB Negeri Bengkulu City totaling 13 students. Data analysis techniques using the t-test. the results of this study indicate that the traditional game-based training program "Go Boy" can be used to improve physical fitness for children with special needs.

Keywords*: Go Boy, traditional games, children with special needs

I. INTRODUCTION

Go Boy is a traditional game combined from the traditional game of sobor sober and boi boian originating from Indonesia. Both of these games are popular with the people in Indonesia despite their different names. The development of the second model of this game is an attempt to better ignore the traditional games in Indonesia, which began to be eroded by the development of technological currents that play forward. As the development of the industry 4.0 era, traditional games in Indonesia are increasingly abandoned by the younger generation in Indonesia.

Sodor's global game demands agility and speed from the participants. Speed is one of the physical elements that exist in physical fitness [7]. Sodor's wagon game also demands agility for its players. Agility in the Sodor's wheelbarrow is when passing through an opponent and avoiding ambush from the opponent. Agility is an element of physical fitness [10]. In addition to the two physical aspects of agility and speed, the Sodor Wagon game is also required to have a player's balance when guarding, players must always be above the game line. Balance is an important element in the physical aspect [3]. These three physical elements are highly demanded by the players, so that through this game players indirectly also have trained their physical condition.

Boi boian game is a target game, where players are required to aim at the target and run from the pursuit of guards. The physical element of accuracy in this game is dominant other than the element of player's cardiovascular endurance. The accuracy element required by the player to aim at the target, accuracy in this game is the ability of eye coordination to aim at the target. Good accuracy is supported by good cardiorepiration ability [6]. Boi boian traditional game in addition to the ability of accuracy, is also required to have good respiration cardio endurance ability, because the players will chase each other, so it requires good endurance of cardio respiration, good cardio respiration ability will have an impact on physical activity [2].

Go Boy game is a modified game from the traditional game of Sodom and Boi Boian. The purpose of modifying both games to make it easier for children to play. The target of this research is children with special needs so it is deemed necessary to modify the activities used for children with special needs. The purpose of this study is to illustrate the effectiveness of the traditional Go Boy game model in improving the physical fitness abilities of children with special needs. The tendency of children with special needs to play more gadgets can be suspected of having low physical fitness because children with special needs are less mobile. This study seeks to develop a traditional game-based training model with subjects of children with special needs that are still rarely studied by researchers in Indonesia, so this study is a renewal in the field of physical activity in Indonesia.

II. RESEARCH METHODS

This research uses the development research method. The subjects of this study were children with special needs and the object of this study was a traditional game. The subjects in this study were 13 children with special needs in the city of Bengkulu. The data analysis technique used by t-test. The first process in this study was carried out by the pre-test. The second step enters the treatment or treatment, treatment in the form of Go Boy games for children with special needs who are deaf. The treatment was given 16 meetings with 3 meetings a week. The post-test is done at the end of the meeting.

The data analysis technique was carried out by analyzing the students' pretest scores in physical fitness of children with special needs, analyzing the results of posttest scores of students in physical fitness of children with special needs, t-test analysis by comparing the results of pretest and posttest, and testing the hypothesis of the difference between before and after given the treatment of the game Go Boy.

Manuscript published on November 30, 2019.
* Correspondence Author
Dian Pujianto*, Bengkulu University, Bengkulu City, Indonesia,
Syafrial, Bengkulu University, Bengkulu City, Indonesia,
Bayu Insanistyo, Bengkulu University, Bengkulu City, Indonesia,

Test the validity of the data using the expert validity test of physical fitness equipment and the diagnostic test of Go Boy game tools.

III. RESULT AND DISCUSSION

A. Result

Table-I: Pre Test Data for Students with Special Needs

Subject	Speed (Seconds)	Abdominal Muscle Endurance (X)	Cardiovascular Endurance (Minutes)
1	13	2	18,12
2	16	2	14,53
3	10	6	13,05
4	15	7	12,07
5	13	12	12,31
6	15	11	15,4
7	15	5	11,09
8	15	6	14,03
9	14	3	9,55
10	12	6	9,27
11	16	9	15,18
12	15	11	11,43
13	14	2	9,21
Amount	168	82	165,24
Average	14,08	6,3	12,7

Based on table 1, it can be illustrated that the average speed of students with special needs is 15.23 seconds, the endurance of abdominal muscles of students with special needs in doing sit ups is 1 minute 4.85 x, and the cardiovascular endurance of students with special needs is on average 13.23 minute. The initial ability of students with special needs is still low, especially in the endurance of the abdominal muscles. Next is presented the posttest test data table.

Table II: Posttest Data for Students with Special Needs

Subject	Speed (Seconds)	Abdominal Muscle Endurance (X)	Cardiovascular Endurance (Minutes)
1	14	1	18,40
2	15	1	15,32
3	11	4	13,50
4	17	4	12,18
5	16	8	13,25
6	18	9	16,20
7	14	6	11,00
8	16	4	14,12
9	13	3	10,48
10	12	5	9,52
11	19	7	16,42
12	18	9	12,18
13	15	2	9,43
Amount	198	63	172
Average	15,23	4,85	13,23

Based on table 2 it can be illustrated that the post test results data of students with special needs have changed. In the speed test students with special needs from the initial data the average speed of 15.23 seconds, the final data 14.08 seconds. Based on this data, it is clear that there is an increase in speed from before the treatment of Go Boy games to after treatment of Go Boy games for children with special needs who are deaf. In the abdominal endurance test the initial data of students with special needs were able to sit up one minute on average by 4.85 times, and the final data after getting a Go Boy treatment the average ability to sit up for children with special needs was 6.3 times. On cardiovascular endurance, the initial data obtained by students with special needs is able to run 1000 meters in an average time of 13.23 minutes, and the final data after the treatment of Go Boy games is obtained on average the ability to run children with special needs is 12.7 minutes. Based on the data, there is an increase in the aspect of cardiovascular endurance.

B. Data Analysis Results

TABLE III. Speed T Test Results

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Speedpre - Speedpost	1.153	1.573	.436	.203	2.1044	2.645	12	.021

Based on table 3 obtained by Sig. (2-tailed): Probability value / p T-paired test value: Result = 0.021. Meaning: there is a difference between before and after treatment. Because: p value <0.05 (95% confidence).

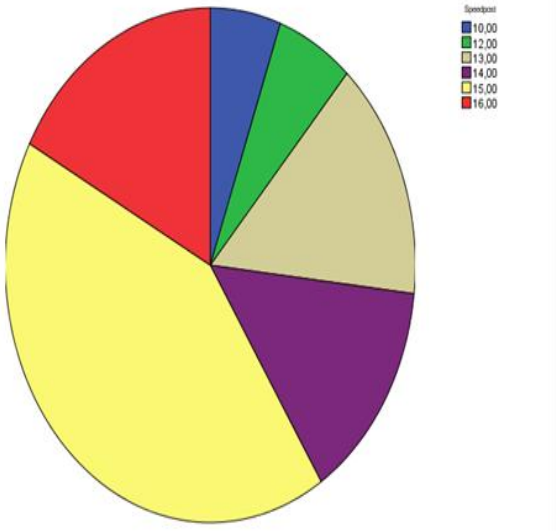

Fig. 1. Speed distribution in children with special needs

Based on table 4, Sig. (2-tailed): Probability value / p T-paired test value: Result = 0.002. Meaning: there is a difference between before and after treatment. Because: p value <0.05 (95% confidence).

Tabel IV: T Test Results for Abdominal Muscle Endurance

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Situppre - situppost	-1.461	1.33	0.368	-2.265	-0.657	-3.96	12	0.002

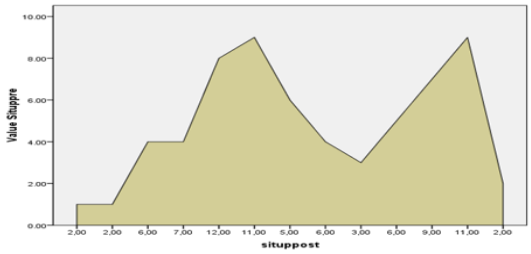

Fig. 2. Diagramming ability of sit-up children with special needs

Table V: Results of Cardiovascular Endurance T Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	cardiovaskulerpre - cardiovaskulerpost	.52000	.41004	.11372	.27221	.76779	4.572	12	.001

Based on table 5, Sig. (2-tailed): Probability value / p value of T Paired test: Result = 0.001. Meaning: there is a difference between before and after treatment. Because: p value <0.05 (95% confidence).

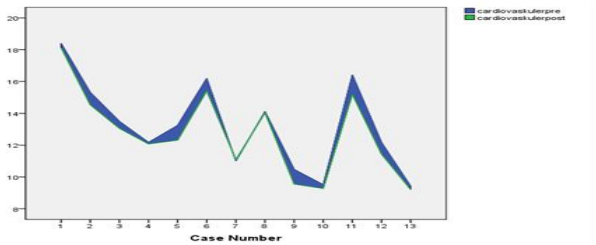

Fig. 3. Cardiovascular endurance of children with special needs

C. Discussion

Go Boy is a modification of the traditional Indonesian game, Sodor and boiboian global games. Both games have been played by children in earlier times. Kampong children often play this game in their spare time. Along with the development of the times and with the advent of technology-based games this game began to be abandoned by children. The tendency of children to play more Android-based games in the 4.0 era has inevitably had an impact on their reduced physical activity. Little physical activity causes various negative effects on the body, including obesity and poor cardiovascular endurance. Physical activity needs are needed to maintain body performance, if physical activity is less then what happens is obesity or being overweight [5]. Likewise, what happens to children, if children lack physical activity then they will experience being overweight [9].

Physical activity is important for physical health itself and mental health. Lack of physical activity causes physical conditions to become overweight and can cause mental disorders in childhood [1]. In children with special needs, physical activity is important, because through sufficient physical activity they become stronger and able to help themselves. Physical activity programs for children with special needs must be adapted to their conditions because the abilities of children with special needs are different from normal children in general. The making of Go Boy physical activity programs based on traditional games is an effort to facilitate the game so that children with special needs can play and play games comfortably.

The adjustment of physical activity programs for children with special needs is an adjustment to their conditions, adjustments so that children with special needs can optimally play and enjoy the game, and the objectives of developing their physical fitness can be achieved. Adjusted physical activity will help children with special needs [12]. Adjustment of physical activity programs is also able to give effect to children who have mental problems [8]. In general, children with special needs require special physical activity programs, based on these considerations, the idea of modifying the traditional Go Boy game appears, which is to simplify the form of the game so that it is easily played by children with special needs.

Based on the results of the study it can be concluded that the Go Boy game appeals to children with special needs. They have fun playing this game. The impact of children's play pleasure is a physical increase in themselves. When children have sufficient physical activity their cardiovascular endurance will be good [11]. In addition to their physical condition, their ability to improve in psychological aspects also improved. An improved form of psychological aspect is an increase in the ability of self-perception of children with special needs after sufficient physical activity [4]. In the game Go Boy also provides opportunities for developing children with special needs both from physical and mental conditions. From the physical condition the child's speed becomes better and increases significantly. In terms of muscle endurance, their endurance is able to get better and increase significantly. And cardiovascular endurance also increased significantly when compared with data before treatment.

Go Boy can improve the physical condition of children with special needs, in terms of mental children look more cheerful in playing and can socialize with outsiders faster. The joy of children playing proves that physical activity in groups gives influence to the child's social psyche [1]. Based on the description above, it can be stated that the cardiovascular endurance training model based on the traditional game "Go Boy" can improve the physical condition of children with special needs and is appropriate for children with special needs.

IV. CONCLUSION

Based on the results of the study can be concluded: "cardiovascular endurance training model based on the traditional game" Go Boy "can improve the physical condition of children with special needs and appropriate for children with special needs".

REFERENCES

1. Acosta-manzano, P., Coll-risco, I., Romero-gallardo, L., Borges-cosic, M., Est, F., & Aparicio, V. A. (2019). Associations of physical activity, sedentary time and physical fitness with mental health during pregnancy : The GESTAFIT project, 00. https://doi.org/10.1016/j.jshs.2019.04.003
2. Bento-torres, O., Stillman, C. M., Grove, G. A., Huang, H., Uyar, F., Watt, J. C., Erickson, K. I. (2019). Associations between cardiorespiratory fitness, physical activity , intraindividual variability in behavior , and cingulate cortex in younger adults, 8, 315–324. https://doi.org/10.1016/j.jshs.2019.03.004
3. Bompa, T. O., Pasquale, M. Di, Cornacchia, L. J., Tudor, O., Pasquale, M. Di, & Cornacchia, L. J. (2016). SERIOUS STRENGTH TRAINING.
4. Christiansen, L. B., Lund-cramer, P., Brondeel, R., Smedegaard, S., Holt, A., & Skovgaard, T. (2018). Improving children ' s physical self-perception through a school-based physical activity intervention : The Move for Well-being in School study. Mental Health and Physical Activity, 14, 31–38. https://doi.org/10.1016/j.mhpa.2017.12.005
5. Cook, M. A., & Gazmararian, J. (2018). The association between long work hours and leisure-time physical activity and obesity. Preventive Medicine Reports, 10(November 2017), 271–277. https://doi.org/10.1016/j.pmedr.2018.04.006
6. Fardman, A., Banschick, G. D., Rabia, R., Segev, S., Klempfner, R., Grossman, E., & Maor, E. (2019). CARDIORESPIRATORY FITNESS IMPROVES THE ACCURACY OF ATHEROSCLEROTIC. Journal of the American College of Cardiology, 73(9), 1702. https://doi.org/10.1016/S0735-1097(19)32308-3
7. France, R. C. (2009). Introduction to Physical Education and Sport Science.
8. Hussen, S. S. (2010). Effect of using the activities of multiple intelligences to learn some basic skills in kata and level of harmonic behavior of the mentally Handicapped , " Acceptors for learning, 5, 1950–1955. https://doi.org/10.1016/j.sbspro.2010.07.394
9. Pop, C. (2014). Physical activities for overweight and obese children – an inclusive approach. Procedia - Social and Behavioral Sciences, 163, 142–147. https://doi.org/10.1016/j.sbspro.2014.12.299
10. Robinson, P. E. (2010). Foundations of Sports Coaching.
11. Takahashi, I., Oki, M., Bourreau, B., Kitahara, I., & Suzuki, K. (2018). International Journal of Child-Computer Interaction FUTUREGYM : A gymnasium with interactive floor projection for children with special needs. International Journal of Child-Computer Interaction, 15, 37–47. https://doi.org/10.1016/j.ijcci.2017.12.002
12. Voznesenskiy, S., Rivera-quinatoa, J. A., & Bonilla-, K. A. (2016). Do equine-assisted physical activities help to develop gross motor skills in children with the Down syndrome ? Short-term results. Procedia - Social and Behavioral Sciences, 233(May), 307–312. https://doi.org/10.1016/j.sbspro.2016.10.140