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Improving Physical Fitness in Early Children through Cardio Circuit Games

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ABSTRACT
Early childhood is the beginning of a very good period of child growth in order to optimise child development, so knowledge about child development at an early age is very important for parents and teachers. This study aims to determine the effect of cardio circuit games on improving physical fitness in early childhood. This research was conducted using the one-group pretest-posttest experimental method. The sample in the content study was 40 elementary school students (6–9 years old) using a random sampling technique. Data were analysed using the normality prerequisite test and t-test to determine the effect of playing cardio circuits on the level of physical fitness. Cardio circuit games in the form of a combination of throwing, running, jumping, and squatting are packaged in the form of game movements across the track from post I to post VI. The results showed that the average pretest and posttest scores increased from 16.1 to 17.8, and the Sig. (2-tailed) is 0.000 greater than 0.05, so it can be concluded that there is an influence between playing cardio circuits and physical fitness levels. The average results of the pretest and posttest scores prove that there is a level of physical fitness for early childhood (lower elementary school students) through cardio circuit games.

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INTRODUCTION

Sport is a physical activity that involves exertion of mind and energy and is carried out with the aim of training the human body, either physically or spiritually. This activity can also increase and improve the performance of the human brain so that it can work more optimally, in addition to increasing physical fitness. Sports are also often done by humans for hobby purposes or to reduce stress due to the daily workload (Yuda, 2021).

Exercise can also provide benefits to improve the physical condition of the human body; by exercising regularly, it will be able to keep the body healthy and fit. In addition to maintaining health, exercise is also done for the purpose of achieving goals. Athletes train in earnest to be able to win a match or a certain sporting event. One important factor in achieving sports achievement is physical condition (Purnama & Ainun, 2021).

Physical activity through exercise can also affect the vital organs in the human body, namely the brain, lungs, and heart, by increasing the heart rate and increasing the frequency of breathing after carrying out these activities (Zahra & Purnama, 2022).

Playing is a way for children to expend a lot of energy and discover new things in a fun way that they didn't know before. And this is, of course, different from the type of learning that ultimately has rules and requirements, as adults understand it. Playing (learning) in childhood has a purpose that parents and adults may not realise. When children play, they are actually developing their inner potential and becoming a solid initial capital for them to face life's problems in the future (Wahyuni & Azizah, 2020).

Playing is able to make a positive contribution to children's development at an early age, namely by encouraging development in all fields, including moral, religious, social, and emotional aspects, language, cognitive, physical movement, and artistic. Besides that, there are goals, characteristics, functions, and benefits, as well as stages of the development of children's play at an early age, complete with games and playing conditions, as well as examples of games that stimulate all aspects of child development. Through play activities, it is possible to help children improve all aspects of themselves comprehensively (Nurhayati, 2021). The chain or circuit game model is very suitable for use in physical education learning. This game is very effective in improving the physical fitness of students, especially in early childhood (Mustaghfirin & Sukiyandari, 2020).

Circuit play is play designed as a circle of pillars, with each child doing a different play activity. Circuit games are designed to stimulate gross motor skills in children as a whole: the ability to move limbs, flexibility, balance, agility, speed, stamina, and touch sensitivity. They are designed to develop motor, non-motor, and manipulative motor skills (Monicha, 2020).

Game activities through post VI in sequence from post I, II, III, IV, and V to post VI and back to post I are called cardio circuit games. The purpose of each post varies according to the specifications of the game. Post I runs back and forth, Post II throws and catches the ball while jumping, Post III throws and catches the ball while squatting, Post IV runs in pairs, Post V runs in pairs while turning their backs, and Post VI jumps one foot and high-fives in pairs.

The characteristics of the development of children in the lower grades of elementary school, or aged 6–9 years, are those of children in the younger age group. This early stage is a brief period in a child's development, but it is very important in life. Therefore, at this time, it is necessary to stimulate all the potentials of children in order to get the best development. The characteristics of the development of elementary school children are usually that their physical development is mature, they are able to control their bodies, and they are able to balance. In the development of intelligence, elementary school children show the ability to sort and group objects, an interest in numbers and writing, increase vocabulary, like to talk, understand cause and effect, and develop an understanding of space and time (Sabani, 2019).

Elementary school children aged 6–9 years are characterised by a close relationship between physical condition and academic achievement, and they like to praise themselves. If they are unable to complete a particular task or job, they will consider that task or job unimportant (Izzaty, 2010).

Physical fitness is the body's ability to carry out daily tasks and work well, not feel significant fatigue, and have sufficient energy reserves remaining while still being able to enjoy leisure time and face critical situations. All types of regular and systematic physical activity, both heavy and light, can show that the heart gradually has a greater work capacity (energy) than usual before regular physical activity becomes habituated, indicating a greater intensity of rhythmic exercise. Some muscles have been trained to maintain the balance of the respiratory and circulatory systems (Sudiana, 2014).

MATERIALS AND METHODS

This research uses research and development methods, which is research used to make and test the effectiveness of certain products (Tanjung, 2021). This research is a new concept in the world of research, especially in sports education, which is carried out by lecturers and students in research in the fields of education and sports.

The research procedure includes the steps that must be followed before producing a product. The main objective in research and development procedures is to develop a product (function as development), and the second is to test the effectiveness of the product in achieving goals (as a validation function) (Mukhtazar, 2020). Broadly speaking, the steps in this study include the preliminary stage, then the model design development stage, and the last stage is validating the model (Gainau B., 2016).

The development in this study was to develop a cardio circuit game, which was then modified by researchers, who then tested it for validation by physical education and game experts with the aim of increasing the activity of lower-grade elementary school-age children in an effort to achieve physical fitness.

The procedure used in this study consisted of five steps, namely: analysing the product; planning and developing the product; validating it by experts; conducting field trials; and finally evaluating and revising the product using the one-group experimental method. pretest-posttest design.

The sample in this study used the entire population of SD Negeri 03 Poncol Semarang students, namely as many as 40 lower grade elementary school students were taken as research samples using a purposive sampling technique, where the sampling technique showed special characteristics that were in accordance with the research objectives so that questions from research could be answered (Hidayat, 2017).

The normality test of the one-sample Kolmogorov-Smirnov test was used by researchers for data analysis as a prerequisite test, and the t-test was used as a test of influence (paired sample test).

RESULTS AND DISCUSSION

Findings

Research conducted on the level of physical fitness of early childhood at SDN 03 Poncol Seamrang is in accordance with the instructions for carrying out the TKJI test, which consists of a 30-metre running test, a bending elbow hanging test, lying down for 30 seconds, running 600 metres, and jumping upright. Based on the research that has been done, the pre-test and post-test scores of early childhood TKJI can be seen in the table below.

Table 1. TKJI pre-test and post-test scores for early childhood at SDN 03 Poncol Semarang

No	Mark	Category	Amount			
			Pre Test	%	Posttest	%
1	22-25	Very good	0	0%	2	5%

2	18-21	Good	14	35%	17	42.5%
3	14-17	currently	19	47.5%	19	47.5%
4	10-13	not enough	6	15%	2	5%
5	10-13	Very less	1	2.5%	0	0%
		Amount	40	100%	40	100%

Table 2. Data Normality Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residuals
N		40
Normal Parameters [a,b]	Means	.0000000
	std. Deviation	.81368145
Most Extreme Differences	absolute	.210
	Positive	.102
	Negative	-.216
Test Statistics		.216
asymp. Sig. (2-tailed)		.162 [c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Based on the table above, it can be seen that the value of Asymp. Sig. (2-tailed) 0.162 > 0.05 means the data is normally distributed.

Table 3. Average Pretest and Posttest Values

Paired Samples Statistics

		Means	N	std. Deviation	std. Error Means
Pair 1	Pre Test	16.1000	40	2.52670	.34621
	Posttest	17.8000	40	2.57145	.35333

The table above shows that there is an average difference from the initial and final values, namely 16.1 <17.8. Preliminary test scores are higher than final test scores.

Table 4. T-test

		std. Error Means	95% Confidence Interval of the Difference		Sig. (2-tailed
			Lower	Upper	
Pair 1	Pre Test - Post Test	.13257	-1.015656	-.50144	.000

From table 4. In the t-test above, it can be seen that the value of Sig. (2-tailed) is 0.000 <0.05, so Ho is rejected and Ha can be accepted. This proves that there is an effect of playing cardio circuits on the level of physical fitness in early childhood at SDN Poncol 03 Semarang.

Development is the process of increasing psychological function and human maturity from birth to the end of life. Early childhood is the beginning of a very good period of child growth to be good at optimising child development, so knowledge about development in early childhood is very important because it can help parents and teachers at school to be able to prepare maximum efforts to improve the child's development (Talenga, 2020).

All aspects of development in early childhood, which include moral aspects, religious aspects, social-emotional aspects, language aspects, cognitive aspects, physical-motor aspects, and artistic aspects, can be developed through play activities and games. A very safe and comfortable playing environment is needed by children in an effort to stimulate developmental aspects in them (Nurhayati, 2021).

One effort to improve children's development is physical activity through play and games. This method is very suitable for the characteristics of children because they will feel happy playing with their friends. Playing can be done by children to express themselves without coercion and with feelings of pleasure, which can benefit their development. Cognitive, motoric, language, attitude, and social development aspects of children can be developed through play activities (Rohmah, 2016).

Circuit games can be used as activities to sharpen children's gross motor skills. A sense of responsibility can be formed through playing cardio circuits, in addition to the skills of each individual. The various elements in this cardio circuit game can be beneficial for developing gross motor skills in children. Each post in this game contains different activities, including activities that can improve body balance and flexibility as well as other supporting activities that can be useful for agility and endurance (Hidayah & Khan, 2021).

CONCLUSION

Based on the results of the research that the researchers conducted with the discussion above, the conclusion in this study was that cardio circuit games were able to improve physical fitness in early childhood (6–9) at SD Negeri 03 Poncol Semarang with an average final test score (post test) that was higher than the average value of the initial test (pre test).

CONFLICT OF INTEREST

There is no conflict interest in the article.

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