

## DEVELOPMENT OF A PHYSICAL TRAINING MODEL IN CIRCUIT TRAINING-BASED FUTSAL GAMES AT HIGH SCHOOLS IN PALEMBANG CITY

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### Abstract

*Physical training is an exercise that must be done by an athlete in order to perform optimally during the competition and so that the athlete can display the techniques that have been learned and can apply the tactics given by the coach because without a good physique an athlete cannot do everything that has been explained. The purpose of this study is to produce a model of physical training in futsal games. The methods used in this study are the ADDIE analysis, design, developmet, implementation, and evaluation methods. The results of this study were obtained from expert validation that had been carried out involving three experts including one futsal coach, one futsal academic, and one futsal practitioner. The instrument in this study uses a questionnaire. Based on the results of the CVI and CVR analysis, a value of 0.5 or valid. It can be interpreted that the YAF 1 model is suitable for use and applied to the physical training of extracurricular high school students in the city of Palembang*

**Keywords:** *training; physical; futsal*

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## INTRODUCTION

In carrying out sports, everyone must be done regularly and consistently and must be in accordance with the mental and physical potential of each person in order to develop physical, spiritual, social and cultural potential. This is in line with the content of the Law of the Republic of Indonesia Number 11 of 2022 concerning Sports, (2022) Article 1 paragraph 1 explains that sports are all activities that involve the mind, body, and soul in an integrated and systematic manner to encourage, foster, and develop physical, spiritual, social, and cultural potential.

Exercise is a physical movement that is carried out with the aim of increasing strength and physical well-being (Ameldi & Ahsyar, 2018). Regularly, exercise can increase stamina and help us in maintaining a balanced diet. Sports can be divided based on their goals or characteristics, such as sports for achievement, sports for recreation, sports for health, and sports for education (Pratvi, 2013) . One example of such a sport is futsal.

Futsal is a ball game played by two teams, each with five players who have the same goal as a football game, which is to put as many balls as possible into the opponent's goal (Afrizon & Fikri, 2024; Setiawan et al., 2023). Syakur et al., (2017) A futsal match takes place between 2 teams where each team consists of 5 players. This futsal game aims to score as many goals as possible by putting the ball into the opponent's goal area. To become a great futsal player, a player or athlete must master some basic techniques (Pramono & Mahfud, 2022). Rinaldi & Rohaedi, (2020) Techniques in the game of futsal that must be mastered by a player are controlling the ball (*Controlling*), passing the ball (*passing*), dribbling (*dribbling*), kicking the ball (*Shooting*), passing the ball (*Chipping*), heading the ball (*heading*).

The techniques mentioned above in this futsal game can be learned and mastered well if supported and supported by good physical freshness. Physical freshness is one of the most important factors in achieving sports achievements. Physical freshness is *Physical fitness* which translates as a physical condition, can also be interpreted as a person's ability to carry out a certain job well, without causing fatigue according to (Widiastuti, 2015). Physical freshness is the body's ability to adjust to physical stress (work) without getting tired (Sepriadi et al., 2017).

In the game of futsal, a player must have excellent physical condition (Yusuf & Zainuddin, 2020). This is because no matter how good a player's tactics and techniques are, if they are not followed by poor physical conditions, the quality of a player's game on the field does not look optimal. So physical condition has a very important role in the world of sports, one of which is futsal. Physical exercise takes a very important role in any sports practice, especially when players are facing a

match or competition. Harsono, (2015) that there are several physical components that must be considered for athletes to develop among these components, namely strength, flexibility (*Flexibility*), speed, stamina, muscle strength, agility (*Agility*), muscle explosiveness (*Power*). Strength Endurance (*Strength Endurance*), cardiovascular endurance.

Exercise is a basic process in preparing motor and mental abilities to improve one's abilities (Fikri et al., 2022). Circuit training (*Circuit Training*) is one of the physical exercises to improve physical fitness or improve a person's physical condition. Circuit exercises, also known as *Circuit Training*, is a type of exercise that can increase the strength of the whole body simultaneously which combines strength training, agility, speed, and anaerobic or aerobic endurance training (Hakim et al., 2020).

## **METHOD**

This method in development research adopts the development research model ADDIE *analysis, design, developmet, implementation, and evaluation*. This research is only up to the stage *development*. Validation involves 3 experts, namely, 1 futsal coach, 1 futsal academic, 1 futsal practitioner expert. The results of the validation test used the Content Validity Index (CVI) and Content Validity Ratio (CVR) which aimed to see if the Mola YAF 1 model was worth testing in the field.

## **RESULT AND DISCUSSION**

### **Analysis**

The research on the development of a circuit-based physical training model in futsal games refers to previous research that has been carried out. Previous research conducted by (Robiansyah & Amiq, 2020) entitled Development of Circuit Training Models in Futsal Games. The research focuses on audio-visual media on circuit exercises carried out in futsal games. Research conducted by (Bile et al., 2021) entitled Development of a Traditional Game-Based Physical Fitness Training Model as a Student Learning Activity in PJOK Learning. The research focuses on physical exercise or physical fitness based on traditional games. Research

conducted by (Jamaludin et al., 2023) entitled Circuit and Interval Training Methods Can Improve the Physical Condition of Futsal Players. The research focuses on how to improve the physique of futsal players using circuit and interval training methods using the program *Air Alert Training*.

Based on observations made by researchers at high schools in the city of Palembang from Friday, May 3 to Tuesday, May 7, which included SMA N 4, SMA N 8, and SMA N 9. Futsal coaches from the school consisting of DA, WU, and HU. Of the 3 schools, 2 of them have never used *circuit training* and 1 has used *circuit training*. Schools that have conducted *circuit training* have 3 to 4 training posts, namely at SMA N 8. Meanwhile, SMA N 4 and SMA 9 have never used *circuit training*. Schools that have done *circuit training* rarely apply it to their physical training. Within 1 month, the school was not even sure to carry out circuit training-based physical exercise .

The physical exercises that are often carried out from the three schools consist of exercises that only focus on 1 physical component per day. For example, on Tuesday, the school did physical exercises focusing on the speed component, and on Friday they focused on the physical component of endurance. Therefore *Researchers* want to create a physical exercise model based on *circuit training*. Exercise *Circuit Training* chosen because the exercise makes students not bored to do physical exercises. This is in line with Lalu Sapta Wijaya Kusuma, (2017) *Circuit training* is an exercise that combines various exercise items with the aim that the exercise is not boring and more efficient.

Physical exercise is very important to do because this exercise is one of the factors to get victory from 4 factors, namely physical, technical, tactical, and mental. Therefore, *the researcher* is interested in conducting a research with the title: Development of a Physical Training Model in Circuit Training-Based Futsal Games in Palembang City High School.

## Design

### Mola YAF 1

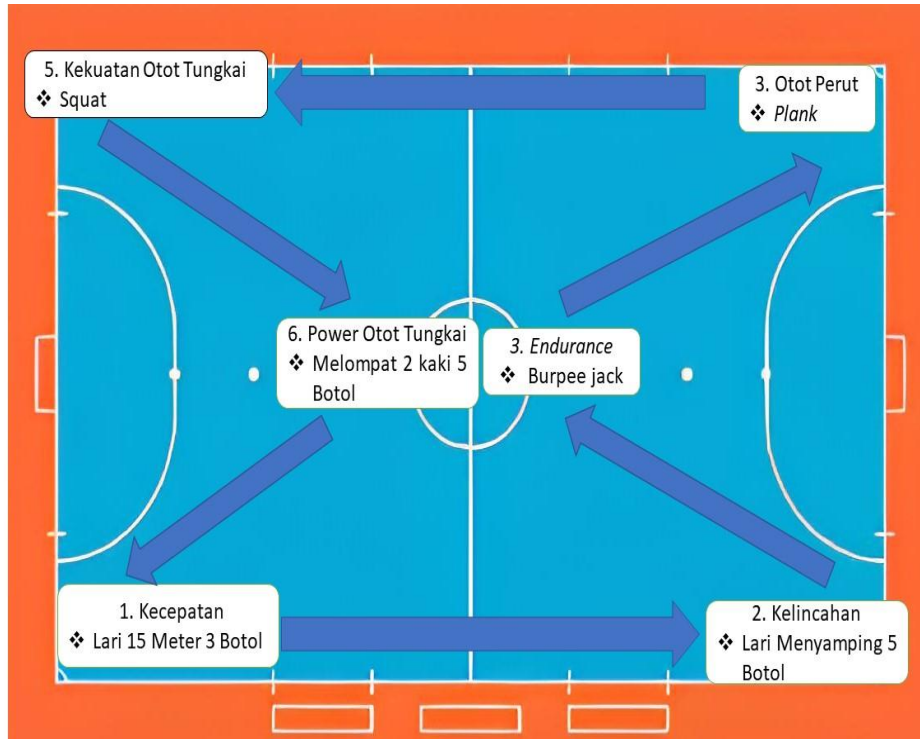


Figure 1. Circuit Training Scheme on Mola YAF 1

### Post 1 Running 15 Meters 3 Bottles

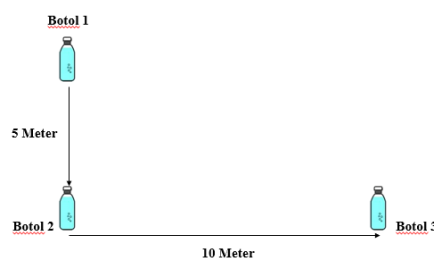
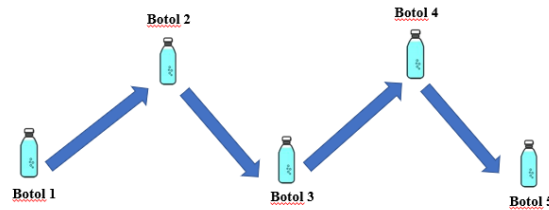


Figure 2. 15 Meter Run 3 bottles

Aim to increase the speed of a student. Equipment used: a) 3 pieces bottle (600ml), b) Meter, c) Flat surface. The implementation instructions: 1) Students stand at the starting line (Bottle 1), 2) Students then run as fast as possible to bottle 2, 3) Students then run as fast as possible to the finish line (Bottle 3), 4) Students do the movement 2 times

### Post 2 Sideways Run 5 Bottles



**Figure 3.** Sideways Run 5 Bottles

Aims to improve the agility of a student The equipment used: a) 7 Bottles of 600ml, b) Meter, c) The surface is flat and good. The implementation instructions: 1) Students stand in front of bottle 1, 2) Students run sideways quickly to bottle 2 until they get to bottle 5.

### Post 3 Burpee Jack



**Figure 4.** Burpee Jack

Aims to increase the endurance strength of a student. Equipment used: a) Stopwatch, b) Bag, c) 1.5 liter bottle, d) Flat surface. The instructions for implementation: 1) Students stand wearing a bag filled with water and straight legs and arms at the sides of the body, 2) Students lower their hands down until they touch the surface and push their feet back like a push up position, 3) Students then push their feet forward, 4) Students jump with their feet close and hands at their sides, 5) Students roll the movement for 30 seconds

### Post 4 Plank



**Figure 5. Plank**

Aims to increase the strength of a student's abdominal muscles. Equipment used: a) Stopwatch, b) Bag, c) 1.5 liter bottle, d) Flat surface As for the implementation instructions: 1) Students Start in a position like a push up by using a bag filled with 1.5 liters of water, 2) Students then put their wrists on the floor until their shoulders are parallel to their elbows. 3) Students ensure that the position of the body forms a straight line from head to toe. 4) Students or hold the position for 20 seconds.

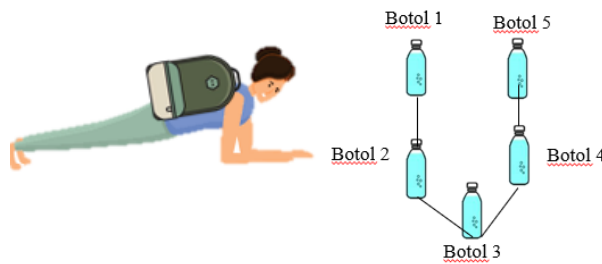
### Post 5 Squat



**Figure 6. Squat**

Aims to increase the strength of the leg muscles of a student. Equipment used: a) Bag, b) 1.5 liter bottle. The implementation instructions: 1) Students stand in an upright position with their feet shoulder-width apart by wearing a bag containing a 1.5 liter bottle, 2) Students lower their bodies as if they want to sit on a chair by bending their knees with their eyes pointing forward and arms forward to maintain balance, 3) Students repeat the movement 12 times

## Post 6 Jumping 2ft 5 bottles



**Figure 6.** Jumping 2 feet 5 bottles

Aims to increase the power of a student's leg muscles. Equipment used: a) 5 bottles (600ml), b) Flat surface. Implementation Instructions: 1) Students stand behind the *starting* line (bottle 1). 2) Students jump with both feet simultaneously forward towards Cone 2. 3) Students then jump with both feet simultaneously forward towards Bottle 3. 4) Students then jump with both feet simultaneously forward in the direction of *the Bottle* 4. 5) Students then jump with both feet simultaneously forward in the direction of *the Bottle* 5. 6) Students repeat the movement up to 2x reps

### Development

At this stage, *the expert judgment* involved consisted of 2 futsal practitioners and 1 futsal academic. The three people have a futsal coach certificate and are lecturers in physical education and sports.

Based on the results of the analysis using CVI and CVR, the Mola YAF 1 model obtained an average of 0.5 or valid, which means that the Mola YAF 1 model has aspects that are suitable for use in the field.

**Table 1.** CVI and CVR Analysis

It	E1	E2	E3	Ne	N	N/2	ne- (N/2)	CVR	Criterion
1	3	3	3	3	4	2	1	0,5	Valid
2	4	4	4	3	4	2	1	0,5	Valid
3	4	4	4	3	4	2	1	0,5	Valid
4	3	3	3	3	4	2	1	0,5	Valid



5	3	4	4	2	4	2	0	0	Valid
6	3	4	4	2	4	2	0	0	Valid
7	2	3	4	1	4	2	-1	-0,5	Valid
8	3	4	4	2	4	2	0	0	Valid
9	4	3	3	1	4	2	-1	-0,5	Valid
10	3	4	3	1	4	2	-1	-0,5	Valid
Sum	32	36	36		Sum		0,5		
Average	3,2	3,6	3,6		Average		0,05		Valid
Average		3,466							

Based on the results of the CVI and CVR analysis, the Mola YAF 1 product was declared valid and met the product standards and the results of the validation found that the Mola YAF 1 model development product is suitable for use by extracurricular students in high schools. Mola YAF 1 has an advantage, which is to make students excited in doing physical exercises. Mola YAF 1 has a good enough score so that it is easy to learn and apply in physical exercise.

As for after validating the experts, suggestions and input were obtained by experts. Some of these suggestions include: 1) the height of the bottle must be 20-30 cm, 2) circuit training must be based on the systematics of physical training, 3) the physical training model must be in accordance with the futsal extracurricular students, 4) improve the implementation instructions.

## Discussion

Based on the results of research that has been carried out by researchers, it was found that the YAF 1 exercise model can be used and applied by extracurricular students in the city of Palembang. YAF 1 Training Model that uses *Circuit Training* It is a good method to improve the physique of futsal extracurricular students. This is in line with circuit training is a physical exercise method that can improve students' physique which includes speed, endurance, agility (Arif Luqman Hakim et al., 2020; Rahman, 2018; Wahyudi, 2018). (Jamaludin et al., 2023) Physical training using the circuit training method can improve the physical condition of futsal players. (Nugraha et al., 2021) The circuit training method can increase the aerobic endurance of futsal extracurricular students.

The circuit training method is used because this training method is not boring and can make students excited in doing physical exercises. This is in line with (Putri et al., 2020) *Circuit Training* is an exercise method that contains different training posts so that students do not feel bored to carry out physical exercises. (Bahtra et al., 2020; Firmansyah, 2023; Hasyim et al., 2018) Exercise methods *Circuit Training* is a practice method that has many forms of practice so that students do not feel bored quickly in learning physics exercises.

## CONCLUSION

By *analysis and design* which has been explained above that the YAF 1 training model can be used and applied to the physical training of high school students in the city of Palembang. Then based on expert validation that has been carried out and involves 3 experts which include 1 futsal coach, 1 futsal academic, and 1 futsal practitioner obtained the result that the YAF 1 training model is suitable for use for extracurricular high school students in the city of Palembang.

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