

The effect of modification small side games using the NAZ app to improve the futsal athlete's vo2max performance

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Abstract.

This study aims to determine the influence of the Modification Small Side Games training method using Naz Application in improving Vo2max performance improvement of futsal athletes. The new findings produced in this study are: In the form of Advantages of Training Methods taught in *Modification Small Side Games* which are suitable for increasing Endurance (*Vo2Max*) in the category of Futsal *Academy* Athletes Cianjur Regency. Material and Method This study used the one group pretest posttest design experimental method with the population that was the target of the study was 20 Futsal Athletes from Cianjur Regency. Sampling using purposive sampling technique Vo2max Futsal Athletes Cianjur Regency. The instruments used to measure the results of Vo2max ability using MST Modification Vo2Max Treatment Design Conducted in 16 meetings through the application of small side games modification exercise methods. Using NAZ APP loogbook workouts and workout videos. Result. Based on the results of processing and data analysis, using analysis with Spss Version 21 with the results of the study shows that the value of Using the Number of Samples 20 with an average value sig-2 value that $0.00 < 0.05$ Then it can be concluded that: (1) There is an effect of training before and after treatment is given to futsal academy cianjur athletes after being given small side games modification training treatment on vo2max increase in the performance of futsal athletes. Conclusion The effect of training before and after treatment is given to futsal academy cianjur athletes after being given small side games modification training treatment on the increase of Vo2max in the performance of futsal athletes So that training using the Naz application has an effect in improving athlete performance, especially in increasing Vo2max futsal athletes.

Key words: Futsal, Exercise Method, Vo2max.

Introduction

The futsal phenoma is amazing. ESPN-Star sport had held an event that was claimed to be the tournament with the biggest prize pool in the world. Almost half a billion rupiah was given to Brazil. "Futsal can improve the skill of playing ball".said david beckham, ronaldinho and who then experienced the living legend of pele. In futsal players touch the ball 210% more often than football. Even a futsal player has a ball possession of 29.5 seconds. In 2002, the sport of futsal began to penetrate Indonesia. The public response to the sport of futsal is huge. Almost all major cities in Indonesia are affected by futsal fever. Even futsal became the "lifestyle" and sport of urban people.(Antonio Luis gallego, 2017)

There are many benefits that can be obtained by playing futsal. In addition to the land needed as a field is not too large, the game can also be done at any time without being disturbed by weather conditions because it is done indoors, the rules are relatively the same as the sepk ball in general there is only a slight difference such as the number of players and the size of the ball. However, futsal rules can be learned easily because the large, small side games adopt large-field football. Futsal can be a place to develop talent abilities. Players can better master games such as mastery of game techniques such as ball possession, Modification Small Side Games attack, and defense. For children and teenagers, futsal will greatly help them to develop instincts and skills. (Nogueira et al., 2018)(Beltrão de Matos, 2008)

Modifications of Small Side Games (SSGs) that combine skills, sports-specific movements, with sufficient intensity to encourage aerobic adaptation, It is possible that with some modifications (for example, the number of players, the size of the field, the encouragement of coaches, and wrestling), the game may be physiologically beneficial for athletes with relatively high levels of initial aerobic fitness. For example, it has been shown that 3-a-side football SSGs produce higher intensity (i.e., longer small side game distances, fewer jogging and walking, higher heart rate, and more tackles, dribbling, scoring attempts, and passes) than 5-side SSGs.

Likewise, when the number of players is kept constant, a larger playing area increases the intensity of the SSG with a smaller playing area that has the opposite effect. It has also been shown that energy expenditure is similar between badminton courts and volleyball, but lower than that obtained on basketball courts. In addition, it has been shown in rugby that wrestling can increase the physical demands of SSG. A consistent coach's encouragement can also increase the intensity of training, although large, small side games rule changes have little effect on training intensity. More research is needed to test the optimal periodization strategy of SSG modification training for the long-term development of physiological capacity, technical skills, and tactical proficiency, while also minimizing the risk of associated injuries. (Halouani, 2014; Smallcombe, 2018) (Halouani et al., 2014)

By playing futsal, players can develop their abilities well. The rules are very strict i.e. players are prohibited from doing harsh tackling and sliding. That way players can appear loose without thinking about the risk of injury to the opponent. Futsal is a type of sport that has strict rules about physical contact. With other aspects of violence such as in football players are not allowed in futsal. violence that often affects football players is rarely found in futsal. This is the main reason why futsal matches are loved by many people. Futsal is more concerned with skill abilities. The ball is smaller and lighter to be a great instrument and helps to develop individual techniques. Because players can be more mature and have control of the ball. The small number of players on a team becomes very crucial for all players in attacking defense. There are no small side games, but all players must help each other and must have the mentality and character of defending and attacking and individual technical abilities of each player. (Müller et al., 2018a) (Caglayan et al., 2018)

To be able to play futsal properly and correctly, futsal players must master the basic techniques, therefore players must be coached during training or school and trained during extracurricular programs at school or training in clubs. Therefore, futsal coaches must master the basic techniques of futsal players correctly and know the training model that must be used. Futsal is a game played by 2 teams each team consists of 5 players and the field is smaller and indoors and the result is determined by the score and time. this is similar to what futsal itself expresses (Müller Et Al., 2018b, 2018a; Zeljko Et Al., 2020) (Ioan Lupescu, 2017) in Spanish and Portuguese, the word "*futbol* or *futebol*" which means football and from French or Spanish, the word "*Salon* or *Sala*" which means indoors", according to . (Antonio Luis gallego, 2017) futsal is indoor football along with the rapid development of futsal, schools in C form a lot of futsal extracurriculars to develop the potential of outstanding children. The game of futsal is a game that focuses on *mature ball* possession skills and techniques. (Ismail et al., 2016)

The new findings produced in this study are: In the form of Advantages of Training Methods taught in *Modification Small Side Games* which are suitable for increasing Endurance (*Vo2Max*) in the category of *Futsal Academy Athletes Cianjur Regency* (Training Methods with Android and IOS Applications, Novelty in the form of tests and measurements in taking vo2max tests containing Process and product elements.

Small Side Games Modification Reinforcement Theory Related to the Effects of manipulating ball type on youth footballers' performance during small-sided games "This study aims to identify the effect of ball type manipulation on a player's physical, technical, creative and tactical appearance in two small game situations: 4-a-side and 6-a-side. Modifying the type of ball in Small Side Games encourages a small to moderate decrease in the number of successful passes and dribbles, improving physical ability". (Santos, 2020) The varied dimensions of pitch have been the focus of previous research given that it can change the demands placed on players. The researchers mainly focused on the size of the play area. (Negating et al., 2018) (Casamichana, 2018)

Materials and Methods

This research took place at the Prima Cianjur Field Futsal Training for Athletes Academy Cianjur Regency, because of some of the first reasons for Futsal athletes in Cianjur regency is the routine place for futsal training at *Cianjur Academy*, the process of implementing *Futsal Academy* Research in Cianjur Regency and the participation of futsal athletes in Cianjur Regency, the implementation of the research was carried out during the training process which in June 2022 The Time of Modification Research small side games this research is planned within 1 month to 16 weeks the three researchers will prepare the process of conducting the study, collecting samples, while the affordable population is set in the U16 Futsal Putra Academy Athlete Group of Cianjur Regency class of 2021 with 2001-2003 births of 20 people then the research process starts in the first week until the last week in June, the research process carried out for the *Small Side Games Modification* Exercise Method, *Interval Training* Exercise Method

Research instruments

Vo2Max Endurance Instrument (Bleep Test) Futsal Modification Multistage (Bleep) Vo2max Test How It Works: (1) The system will work when the power button is pressed, and everything has been connected between the device and the lamp indicator panel. (2) The button only needs to be pressed once and then held. (3) After it is active, the screen will light up and the system is ready to use. (4) The object remains in front of the sensor on the lamp indicator panel. (5) Then wait until there is a "BEEP" sound coming out of the device or a green light light up from the lamp indicator panel. (6) After a sound is heard and the light is seen, the object is

welcome to run towards the other lamp indicator panel. (7) Please do it repeatedly every time the sound is heard. (8) The results of the test will appear directly on the display on the device.



Figure 1. MST Modification

Vo2Max Test

The test consists of 23 levels in which each level lasts about a minute. Each level consists of a series of 20m shuttles where the initial speed is 8.5km/h and increases by 0.5km/h at each level. The test is carried out as follows: 4 Measure small side games 20 meters Analysis of live results recorded your VO2max. Please note that, when compared to MSF Table values, the calculator result can be incorrect up to ± 0.3 mls/kg/min: $4 VO_{2max} = 18.043461 + (0.3689295 \times TS) + (-0.000349 \times TS \times TS)$ Where TS is the total number of completed shuttles.

MST Modification Vo2Max Test Criteria This test is suitable for endurance athletes and endurance sports players (e.g., football, Futsal rugby) but not for individuals where the test will be Vo2max. A degree of caution is required in managing the test, what distinguishes it from the bleep test that was modified in this study is to look at the sensor and look at the lights and maintain the results provided for this. Validity The validity test shows a value (rxy) of 0.886. When compared to r table = 0.282 then the rxy value is greater with a sig value of $0.000 < 0.05$ Thus, it can be concluded that the Vo2Max Test Modification instrument used is **Valid** besides that the Instrument Reliability expert is calculated using the Alpha Cronsbach Formula of $0.957 > 0.6$ thus it can be concluded that the Vo2Max Test Modification instrument used is **reliable**

Procedure for Conducting Using the Naz application

This research process is carried out three times a week (Monday, Wednesday, Friday) The implementation of this research is carried out at 15.00 to 17 o'clock. 00 reminds the practice process to be run in the afternoon. Population Researchers Population and Target samples in this study are the entire U16 Futsal Putra Academy Athlete Group Cianjur Regency, Training using the Naz training Application with guidance in the book and application provided



Figure 2. Naz App and Book Training

Research Analysis

This study used Experiential Research with Analysis using SPSS version 21 with Paired Sample t Test analysis to see the effect between variability before and after treatment

Descriptive Statistics Research Results

Table. 1 Descriptive Statistics

Dependent Variable: VO2Max				
Exercise Methods	Mean	Std. Deviation	N	
	37,000	3,2252	200	
Small Side Game Modifications	48,190	1,0397	20	
		Total	20	

The calculation results showed that the group of futsal athletes who trained as soon as they were given modification side games had an average score of 48,950 higher than before the *small side games* modification training method with an average score of 45,595.

Research Results -T Test Effect before and after Treatment

Table. 2 Test- T Experimental

(I) Small Side Modification Exercise Method	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
X	6,355*	0,7251	0,000	4,608	8,102

There is a noticeable effect that sig (p) is 0.000 (0.000 < 0.05), to be seen in the table the column sig (p) is 0.000 or the probability is well below $\alpha = 0.05$. So that a decision can be made to reject H_0 and accept H_1 . Thus, there is a difference in the average VO2Max from the group given before and after the modification of *small side games* in futsal athletes. The calculation results showed that the group of futsal athletes who trained after being given modification side games had an average score of 37,000 higher than before the small side games modification training method with an average score of 48,190. Thus, VO2Max in the group taught before and after which was given a modified *small side games* exercise method

Discussion

Our results reveal different intra- and inter-team behaviors according to SSG Format and player age. everything improves with improvement so there needs to be an increase in training modified Small Side Games for Young Age. Aerobic capacity development is an important consideration for Trainer conditioning. Modified Small Side Games is a team sports game played with the skills necessary to successfully play complex games in nature during SSG with this exercise the game is proven to improve aerobic capacity and running performance of physical games.(Castellano, 2017)(Malone, 2017)

Modification *Side Games* has an average score of 37,000 higher than before the *small side games* modification exercise method with an average score of 48,190. Thus, VO2Max in the group taught before and after who were given a small, modified exercise method

In the developmental stage, sports must be adapted to children to provide an enriching experience that allows them to develop as players and people. Modification Exercises should be rules usually used in sports to adapt them to the cognitive and physical abilities of children. Manipulating the limitations of game tasks affects the motor actions performed by the athlete. In football, the use of adaptation of rules, such as a small game, is common in training. However, nowadays, due to the many aspects that affect the interaction of the players during the game, it is not entirely clear what the impact of this modification of this small side game is. relating to the physical aspect, and in training situations. Less information is known about the impact on technical development and Engineering Capabilities. .(González-Rodenas, 2015)(Bujalance-Moreno, 2022)(Ortega-Toro, 2018) Small Side Game (SSG) is now a common feature of futsal training as it allows a greater understanding of which indices affect player response. The SSG play area is the structural element that is most often modified when planning training. Typical modifications to Small Side Games (SSG) include variations in the length and width of the field and relative space per player or maintaining the same tonal dimensions but dividing them into different areas.(Casamichana et al., 2018)(Photakis, 2015)

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Conclusion

The effect of training before and after treatment is given to futsal academy cianjur athletes after being given small side games modification training treatment on the increase of Vo2max in the performance of futsal athletes So that training using the Naz application has an effect in improving athlete performance, especially in increasing Vo2max futsal athletes.

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