



The Increase in VO₂ Max and Passing Using Exercise Small-Sided Game 3 vs 3 and 6 vs 6 On Football Players

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ABSTRACT

The purpose of this study was to determine the increase in vo2max and passing skills using small-sided games 3 vs 3 and 6 vs 6 exercises in soccer players. This study uses a quantitative approach, the type of research is experimental research, the sample used is 51 football players in Trenggalek under-14 who were selected randomly, this research was carried out in Trenggalek district, namely the Siwalan field, Sumbergedong field, and Sumberagung field, the instrument in the study This study uses a multistage fitness test and a passing test in football, data analysis uses the Manova test. The results showed that there was a difference between the small-sided games 3 vs 3 exercise group and the 6 vs 6 small-sided games group to increase vo2max with a sig value. $0.031 < 0.05$, and there is a difference between the small-sided games 3 vs 3 practice group and the 6 vs 6 small-sided games group to improve passing with a sig value of $0.027 < 0.05$. It can be concluded that overall small-side game exercises 3 vs 3 and 6 vs 6 can increase vo2max and passing for football players.

Keywords: Vo2max; Passing; Small-Sided Game; Football.

INTRODUCTION

Football is a physical sport which means that all players are required to have excellent physical endurance, the results of studies in football schools throughout Trenggalek Regency show that many players have the poor aerobic capacity, out of 69 players 4 players have an average VO₂ max, 7 players have a VO₂ max below on average, the rest of the players have a bad VO₂ max. Based on this study, many factors may influence it, one of which is the training menu that is not following the sport, considering that each sport has its standard of training criteria to achieve the intended target, so that in coaching and developing athletes it does not cause feelings of boredom to the training program. In soccer, exercise increase aerobic capacity according to research results that small-sided game exercises can increase aerobic capacity for soccer players (Apriliyanto,

2019; Putra, 2015; Shandy, 2017; Wahyudianto, Setiawan, & Pratama, 2020). Small-sided games (SSG) are games played on a smaller field, using modified rules and involving fewer players than normal football (Hill-Haas, Dawson, Impellizzeri, & Coutts, 2011). The use of small-sided games as a special instrument to improve physical condition, develop players' tactics and techniques, increase specificity and training stimulus is indeed very effective in terms of the progress achieved (Kelly & Drust, 2009). In the practice of small side games, there are several variations including 1 v 1, 2 v 2, 3 v 3 4 v 4 5 v 5 and 6 v 6 with different field sizes (Owen, Twist, & Ford, 2004).

In the game of football, in addition to good physical condition, players also need qualified techniques, one of the techniques in the game of football is passing. The passing technique in the football game, which is to give feedback to teammates, the goal is not to score goals (Pratama, 2017) in the 3 v 3 small side game exercise, turns out to have an impact on passing techniques that are more frequent than other techniques (Owen et al., 2004).), another finding states that 3 v 3 training is better than 6 v 6 in improving physical condition and football technical ability and is recommended to be used to train young players (Katis & Kellis, 2009). Based on these findings, this study will try to prove and compare the practice of small-sided games 3 v 3 and 6 v on vo₂max ability and passing ability in football.

METHOD

In this study using a quantitative approach, the quantitative approach in research is characterized by hypothesis testing and the use of standardized test instruments (Maksum, 2012), the type of research used is experimental research, type experimental research is a way to reveal a relationship between two variables. or more and also to find the effect of one variable on other variables (Maksum, 2012), the sample used was 51 football players in Trenggalek under-14 who were randomly selected, this research was carried out in Trenggalek district namely the Siwalan field, Sumbergedong field, and Sumberagung field, the instrument in this study used a multistage fitness test and a passing test in football (Winarno, 2006), the data analysis in this study used the Multivariate Analysis of Variance (MANOVA) test which was designed to simultaneously test differences in several dependent variables, for this purpose, the form of the hip test The hypothesis used is wilks' λ . If the results of the Wilks' λ analysis show a significant difference, then the analysis is continued by looking at the combination of

differences between groups (Maksum, 2012).

RESULTS AND DISCUSSION

The results of the pretest and posttest measurements for each exercise group using the passing test and the multistage fitness test can be seen in the table and graph below:

Table 1.
Pretest and Posttest VO₂ Max Practice Group Small-Sided Games 3 VS 3

No	Category	Interval	Pretest		Posttest	
			F	%	F	%
1	Excellent	>55,6	0	0%	0	0%
2	Above average	51,7 - 55,3	0	0%	0	0%
3	Average	42,5 - 51,4	6	50%	7	58%
4	Below average	36,6 -42,2	3	25%	5	42%
5	Low	<36,3	3	25%	0	0%
Total			12	100%	12	100%

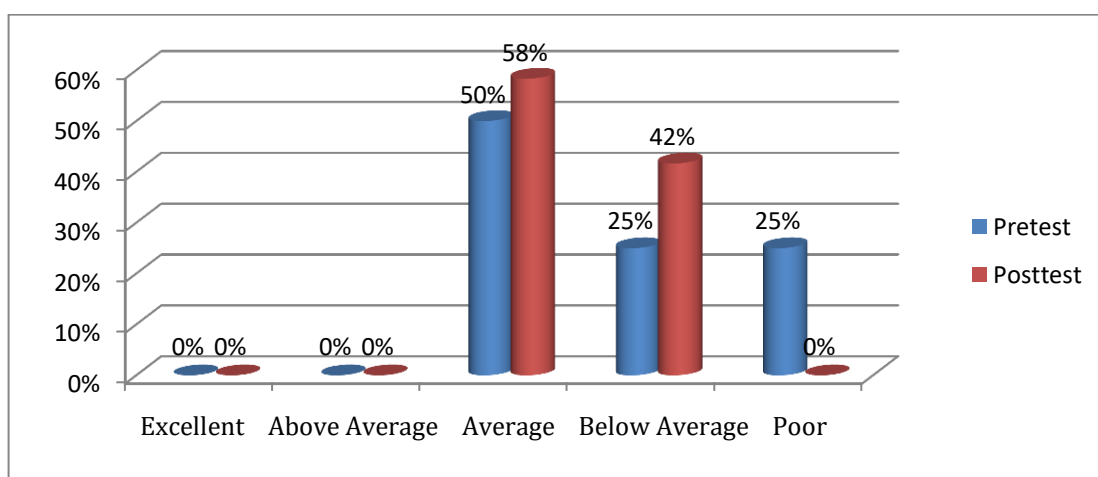


Figure 1.
 Graph pretest and posttest VO₂max exercise group Small-Sided Games 3 vs 3

Table 2.
 Results pretest and posttest Passing Exercise Group Small-Sided Games 3 vs 3

No	Class Interval	Pretest		Posttest	
		F	%	F	%
1	13-14	0	0%	6	50%
2	11-12	5	42%	2	17%
3	9-10	2	17%	4	33%
4	7-8	3	25%	0	0%
5	5-6	2	17%	0	0%
Total		12	100%	12	100%

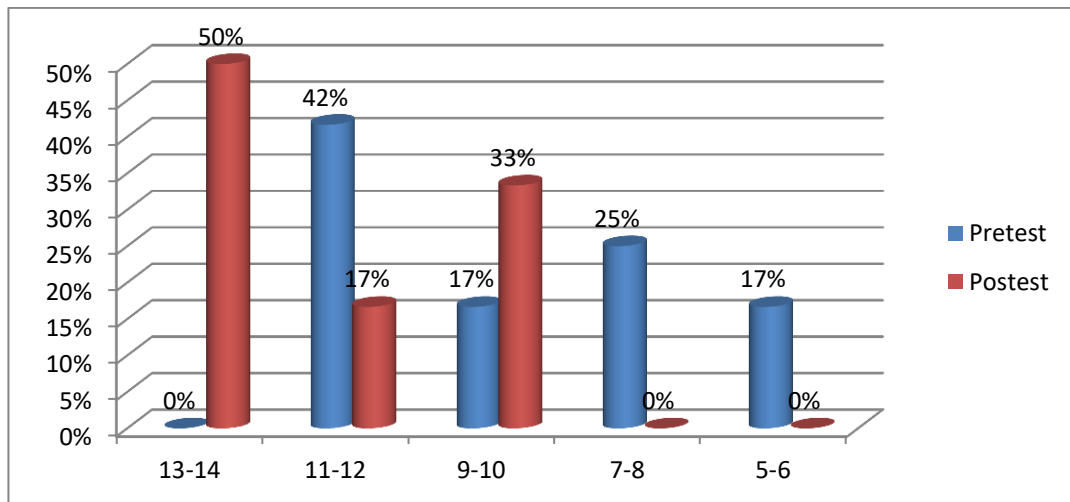


Figure 2.
 Graph pretest and posttest Passing Exercise group Small-Sided Games 3 vs 3

Table 3.
 Pretest and Posttest VO₂Max Practice Group Small-Sided Games 6 VS 6

No	Category	Interval	Pretest		Posttest	
			F	%	F	%
1	Excellent	>55,6	0	0%	0	0%
2	Above average	51,7 - 55,3	0	0%	0	0%
3	Average	42,5 - 51,4	1	4%	3	13%
4	Below average	36,6 - 42,2	3	13%	11	46%
5	Low	<36,3	20	83%	10	42%
Total			24	100%	24	100%

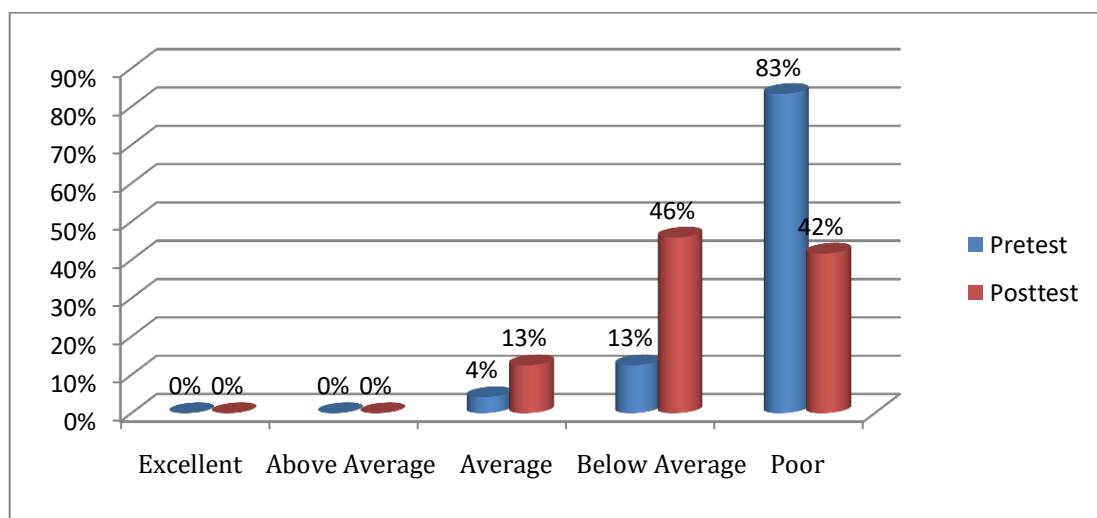


Figure 3.
 Graph of Pretest and Posttest VO₂ Max Practice Group Small-Sided Games 6 VS 6

Table 4.
 Pretest and Posttest Results of Small-Sided Games 6 VS 6 Practice Group Passing

No	Class Interval	Pretest		Posttest	
		F	%	F	%
1	13-14	0	0%	5	21%
2	11-12	2	8%	10	42%
3	9-10	5	21%	8	33%
4	7-8	11	46%	0	0%
5	5-6	6	25%	1	4%
Total		24	100%	24	100%

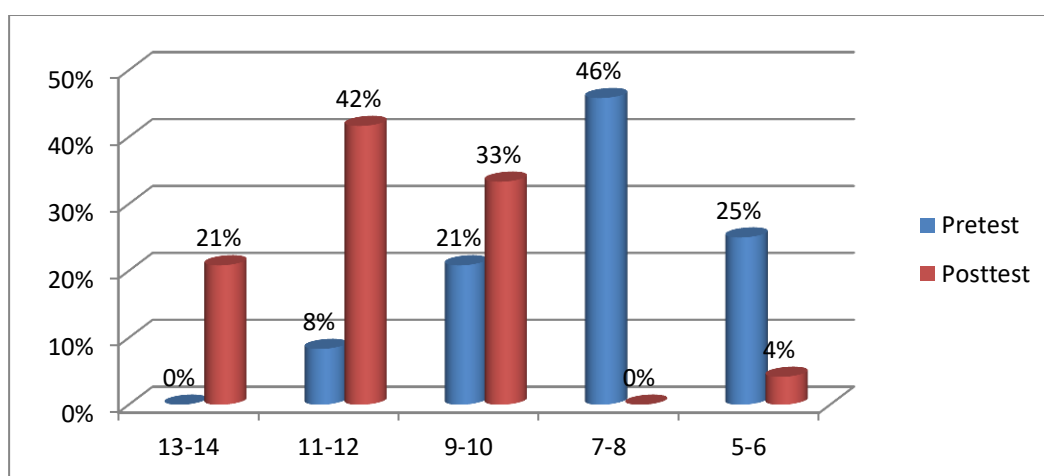


Figure 4.
 Graph of Pretest and Posttest Passing Practice Small-Sided Games 6 VS 6

Tabel 5.
 Manova Test Comparison of Posttest Results for Small-Sided Games 3 vs 3 and Small-Sided Games 6 vs 6 Against VO₂Max Increase

Kelompok	Rata-rata	Tests of between-subjects effects		
		F-hitung	F-tabel	Sig
Group ssg 3 vs 3	43,4917	4,662	2.80	0,031
Group ssg 6 vs 6	37,1833			

Based on the Multivariate Analysis of Variance (MANOVA) test in Table 5, the posttest scores for Small-Sided games 3 vs 3 and the posttest small-sided games 6 vs 6 indicate that the sig value is 0.031 < 0.05, so this result shows that there is a difference between the small-sided games 3 vs 3 exercise group and the small-sided games group sided games 6 vs 6 in VO₂ max increase.

Table 6.
 Manova Test Comparison of Posttest Results of Small-Sided Games 3 vs 3 and Small-Sided Games 6 vs 6 Against Passing Improvement

Group	Rata-rata	Tests of between-subjects effects		
		F-hitung	F-tabel	Sig
Group ssg 3 vs 3	11,8333	4,868	2.80	0,027
Group ssg 6 vs 6	11,1250			

Based on the Manova test in Table 6, the posttest scores for Small-Sided games 3 vs 3 and the posttest Small-Sided games 6 vs 6 indicate that the sig value is $0.027 < 0.05$, so this result shows that there is a difference between the practice group for Small-Sided game 3 vs 3 and the Small-Sided games group. 6 vs 6 in increased passing. The results of this study indicate that overall small side game exercises 3 vs 3 and 6 vs 6 can increase vo₂max. This is reinforced by research (Asmutiara, 2015) that Small-Sided game can increase the cardiovascular endurance of football players, using a small number of players will provide players play with high intensity that resembles a match in a competition, the main benefit of Small-Sided game as well as the replication of a real football game where the movement, intensity and technical play is similar to that of a competitive match so that it trains players to make decisions under pressure and fatigue due to the match (Hill-Haas et al. al., 2011). Besides being able to improve physical abilities, the results of this study also show that the small side game exercises 3 vs 3 and 6 vs 6 simultaneously can also improve passing technique skills, strengthening results of the study, some researchers also state that small side game exercises provide small side games. the effect on increasing football passing ability (Doewes, Purnama, Syaifullah, & Nuryadin, 2020; Hakim, 2020).

In the 3 vs 3 Small-Sided game training group, the impact of changes for increasing vo₂max, based on this the researcher can assume that the fewer number of players in the field will make the players perform more performance during training, following other research that in Small-Sided games training 4 vs 4 players cover more distances and sprint more often than 11 vs 11 exercises (Dellal et al., 2012), but in the 6 vs 6 Small-Sided games training group with more players, the intensity of training will be higher. not too high compared to the 3 vs 3 Small-Sided games training for junior athletes, following other research that with the advantages and disadvantages of 6 vs 6 and 3 vs 3 Small-

Sided games training, coaches can determine the type of exercise needed for their athletes (Silva, 2014).

CONCLUSIONS AND SUGGESTIONS

This study concludes that overall small side game exercises 3 vs 3 and 6 vs 6 can increase vo₂max and passing for U-14 football players. For coaches, it can be a source of knowledge, motivation, and evaluation material of an exercise program to train and improve VO₂ max ability and passing skills using Small-Sided games 3 vs 3 and Small-Sided games 6 vs 6. Suggestions for further research are research on the performance analysis of junior athletes using Small-Sided games 3 vs 3 and Small-Sided games 6 vs 6.

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