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Agility and Balance on the Speed of Dribbling in Soccer

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Abstract—Agility and balance are important in the speed of dribbling in soccer for the student. The main of the research was to identify a level of quantitative changes of the dribbling speed with fifteen years old football players under the influence of the agility and balance. This research method is associative descriptive with regression analysis techniques. The population of this study was all students in the Cigudeg Soccer School amount of 130 people. The sample in this study amounted to 30 people with a purposive sampling technique (Age ± 13-15 years old). The results are: (1) Agility affects the speed of dribbling in soccer, (2) Balance has a significant effect on the speed of dribbling in soccer, (3) Simultaneously agility and balance significantly influence the speed of dribbling. Thus, agility and balance can be a priority in practising speed of dribbling in soccer.

Keywords: agility, balance, speed of dribbling, soccer

I. INTRODUCTION

Soccer is the most popular sport in the world [1] and a high intensity team sport that requires a good amount of physical and physiological abilities. Soccer players must also develop and maintain high levels of aerobic and anaerobic conditioning, speed, agility, strength and strength. Soccer coaches must work in an integrated manner to ensure a structured and effective program [2] agility is the main components of soccer training [3] and sport-specific movements compared with balance training [4].

Based on the results of observations of the Cigudeg Soccer School, there are still many students who have not been able to play football properly, especially in the speed of dribbling. Cigudeg Soccer School students have several age groups that are fostered separately based on age groups, including (1) Ages 7-9 years, (2) Ages 10-12 years, (3) Ages 13-15 years, (4) Ages 16-18 years, (5) Ages 18-23 Senior, (6) Goalkeeper. The results of observations of the match on the SSB Cigudeg U-15 team lacked agility and balance in dribbling speed, so the ball was easily captured by the opponent. Therefore, the need for agility and balance of the speed of dribbling.

Dribbling requires good speed and support from elements of good physical condition as well as agility and balance can provide faster movement abilities [5]. With a lot of repetition methods, the ability to dribble a balanced and agile can be achieved and displayed in the match.

II. METHOD

The research method used a descriptive method, that seeks to describe and interpret objects according to what they are. The sample in this study were all Cigudeg Soccer School students, amounting to 30 people with an age range of 13-15 years. The design of this study uses regression analysis in regression statistics is one method to determine the causal relationship between one variable with another variable [6] [7]. The causal variables referred to by the various terms used in this study are independent variables and dependent variables. The instruments are dodging run for agility, modified bass test for balance, and the dribbling skills test [8].

III. RESULT AND DISCUSSION

The results of measurements of agility, balance, and speed of dribbling can be seen in the appendix and summarized in table 1 below.

Table 1. Descriptive Statistics

	N	Min	Max	Mean	SD
Agility	30	20.1	25.9	23.407	1.616
Balance	30	35	50	40.33	5.074
Dribbling Speed	30	24.1	30.4	26.760	1.530
Valid N (listwise)	30				

As in table 1 above, it appears that the average agility is 23.407 with the highest agility of 25.9 and the lowest of 20.1, the average balance of 40.33 with the highest data of 50 and lowest of 35, the average of dribbling speed by 26.76 with the highest data of 30.4 and the lowest of 24.1.

Normality Test

This test to identified normally distributed if the results of the Kolmogorov-Smirnov test have an error probability or

probability greater than 0.05. The results test calculations in this study are as follows:

Table 2. Normality Test Results

		Unstandardized Residual
N		30
Normal Parameters[a]	Mean	.0000000
	Std. Deviation	.92813574
Most Extreme Differences	Absolute	.109
	Positive	.109
	Negative	-.063
Kolmogorov-Smirnov Z		.595
Asymp. Sig. (2-tailed)		.871

Test distribution is Normal.
Calculated from data

Based on table 2 above, it is known that the results of data calculated using the Kolmogorov-Smirnov test have normally distributed values, for the calculation results obtained are 0.595 with an asymptote significance of 0.871, because the significance value is 0.871> 0.05, It can be concluded that the data from these calculations are normally distributed.

Heteroscedasticity Test

The test aims to test in the regression model that there are an unequal variance and residuals of one observer to another observer. No heteroscedasticity is if there is no clear pattern, and one point spreads above and below the number 0 on the Y-axis.

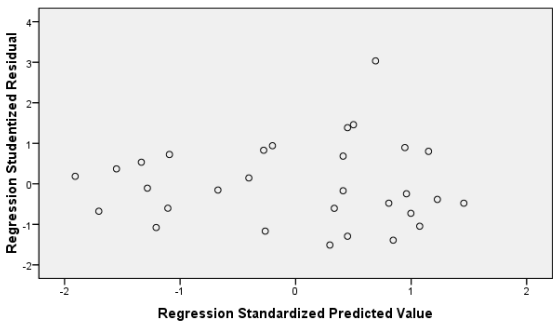

Figure 1. Graph of Scatterplot

The figure above shows that there is no clear pattern and the points are spread above and below the number 0 on the Y-axis. This shows that the data in this study did not occur in heteroscedasticity.

Multicollinearity

The results of the calculation data are related to the perfect relationship between the independent variables.

Table 3. Multicollinearity Test

Variable	Tolerance	VIF	Criteria
X1	0.567	1.765	Nonmulticolinearity
X2	0.567	1.765	Nonmulticolinearity

Based the results in table 3, the value calculation results tolerance do not have an independent variable that has a value of tolerance less than 0.10, with a tolerance value of each variable of 0.567, while the results of the calculation of the value of the variance inflation factor (VIF) also shows the same thing is the absence of VIF value from independent variables that have a VIF value of more than 10 with a value of each variable of 1.765 Referring to the calculation of tolerance and VIF results it can be concluded that there is no multicollinearity between the independent variables in the regression model

Multiple Linear Regression Test

This analysis includes multiple correlation analysis, determination analysis, regression coefficient tests together, partial regression tests. After the results of the study were analyzed using SPSS obtained tables as shown in Table 4

Table 4. Test Analysis of Multiple Regression

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	20.511	4.892		4.193	.000
	Agility	.465	.147	.491	3.167	.004
	Balance	-.115	.047	-.381	-2.457	.021

a. Dependent Variable: Speed of Dribbling

Based table 4 obtained regression equation Y = 20.511 + $0{,}465X_1$ - $0.115X_2$. The equation explains that the constant a is equal to 20,511, this means that if the agility, balance, and speed of passing the ball are worth 1 then the value of 20.511.

The agility regression coefficient is 0.465, and this means that the result of the speed of dribbling will experience the addition of 0.465 for each additional agility of 1%, assuming the value of each independent variable is fixed.

The regression coefficient of balance is -0.115, and this means that the result of the speed of dribbling will decrease by 0.115 for each additional balance of 1%, assuming the value of each independent variable remains.

Agility obtains a value of t_{count} = 3.167 with a significance value of 0.004 < 0.05, the partiality obtained influence the speed of dribbling in soccer.

The balance obtains the value of t_{count} = -2.457 with a significance value of 0.021 < 0.05, then partially obtained. The balance affects the speed of dribbling.

Simultaneous test identified the effect of independent variables simultaneously on the dependent variable.

Table 5. Simultaneous Results (Test F)

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42.970	2	21.485	23.221	.000
	Residual	24.982	27	.925		
	Total	67.952	29			

a. Predictors: (Constant), Balance, Agility

b. Dependent Variable: Speed of Dribbling

Based on the table above, F value of 23.221 and a significance value of 0.000 < 0.05, it concludes that simultaneously agility, balance significantly influences the speed of dribbling.

The test aims to measure the ability of the model to explain the variation of the dependent variable.

Table 6. Coefficient Determination Test Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. error of the Estimate
1	.795[a]	.632	.605	.9619

a. Predictors: (Constant), Balance, Agility

Based on the table 6 above, the Adjusted R Square value obtained is 0.605, this means that 60.5% variation of the speed of dribbling can be explained by two variations of the agility and balance, and 39.5% explained by other variables out the study.

Discussion

From the results of the data analysis, agility obtains a value of t_{count} = 3.167 with a significance value of 0.004 < 0.05, it is known that the first hypothesis is accepted, the effect of agility on the speed of dribbling on soccer players. Dribbling speed must be supported with agility [9] because agility increases the speed of dribbling so fast and agile. Agility influences speed and dribbling skills [5], if there is no agility, it is impossible dribbling to get to the opponent's defence.

The second hypothesis testing results are the balance obtains the value of t_{count} = -2.457 with a significance value of 0.021 < 0.05, then partially obtained the balance affects significantly on dribbling speed. The higher the balance of the player when dribbling towards the opponent's defence, thus increasing the likelihood of success of dribbling speed. This can be seen from the results of tests on multiple linear regression analysis. So the higher the balance, the faster the dribbling speed of soccer players [10].

The results of the third hypothesis test are obtained that there is an effect of agility and balance on the speed of dribbling on soccer players. Because the combination of agility and balance will greatly affect the results of the speed of dribbling, each has its function, and agility has the agility of agile dribbling speed to produce maximum agility. Balance serves to increase the results of the speed of the dribbling speed towards the opponent's defence, 60.5% variation of the speed of dribbling can be explained by two variations of the agility and balance, and 39.5% explained by other variables out the study.

IV. Conclusion

Based on the results of research and data analysis, it can be concluded that: (1) Agility affects the speed of dribbling in soccer, (2) Balance has a significant effect on the speed of dribbling in soccer, (3) Simultaneously agility and balance significantly influence the speed of dribbling. Thus, agility and balance can be a priority in practising speed of dribbling in soccer**.**

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