

A STUDY OF AGILITY, COORDINATION AND SPEED AS RELATED TO DRIBBLING AND KICKING PERFORMANCE OF JIMMA, WOLISO AND SEBETA TOWN MALE FOOTBALL PLAYERS

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ABSTRACT

The purpose of this study was to explore agility, coordination and speed as related to kicking and dribbling performance of Jimma, Woliso and Sebeta town football players. For the purpose of the study 52 male football players were selected through stratified random sampling techniques as the subjects. Mean, standard deviation, Pearson product moment correlation coefficient and MANOVA- Wilks' Lambda were used for statistical analysis of the data by using SPSS-20 software. The results revealed that dribbling had a significant relationship with agility and coordination. More importantly, dribbling had significant high relationship with speed. It was also found that, speed and agility significantly affected both dribbling and kicking performance of football players. Separately, speed and agility significantly influence the dribbling performance of football players. On the basis of the findings it could be concluded that the dribbling has a significant high relationship with speed.

Keywords: Agility, coordination, speed, dribbling & kicking.

1. INTRODUCTION

Football is educationally the most popular and oldest sport in the world. It is a flexible game offering the enjoyment of children, even in some side-street, school playground or park and for professionals competing in the summit of soccer of the world cup (NASOU, 1999). The issue of Ethiopian football has recently grown in its importance, recent development in the field of football have lead to revamped the school, college, university, clubs, national and international level (ESP, 2000).

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Over the past half century, Ethiopian national football team international participation has been declined gradually. Since 1962, until now, no Ethiopian football club has been ever won CAF Champion league, African confederation cup or any other international club competition (FIFA, 2006). Detailed examination of football performance by Akenhead, (2014) showed that there is a lot of limitation which impedes performance of football players. It is indisputable, skill related physical fitness, including speed, coordination, power, agility, balance and reaction time contribute to a lot in enhancing the performance of football player. Hence, the ability to perform a particular sport or activity may depend on skill related fitness components (Fahey, Roth, & Insel, 2003). Skill related fitness tends to be sport specific and best developed through practice. Agility, coordination and speed are an important component of football players performance needed to play football, and then these can be developed through taking part in playing football systematically and regularly.

To date speed, agility, coordination, dribbling and kicking theoretically and practically found to be the issue which numerous studies suggested, paramount difference has been observed in physical capacity of the team compared with the past (John, 2014).

Apparently speed, coordination, agility, dribbling and kicking are becoming more and more imperative in football game situation. It is not surprising, the intensity of the game, the attacking movements the breaks from out of defense and changes in the tempo of the game all requires greater and nonstop endurance on the part of the players (Fahey, *et al.*, 2003).

A vast number of publications revealed that agility, coordination, speed, dribbling and accuracy pass has been the fundamental components of successful football player performance (Napoleon, & Rani, 2014). Similarly prior research study conducted by Lyons (2006) suggested, football is the main offensive action during the game and the team with less kicks on target and has less chance to score the goal and has less probability to win the game.

Numerous research studies has been sufficient evidence that in game situation, agility, coordination and speed are the components of dribbling and kicking performance of football players (John, 2014). Very few research results have been investigated separately and independently. However, there is insufficient evidence to show the correlation among agility, coordination, and speed across kicking and dribbling of players football performance (Chomiak, Junge, Peterson, & Dvorak, 2000). Similarly, there is no sufficient literature which revealed to what extent agility, coordination and speed has been explained kicking and dribbling performance (Martens, 1977). In conformity with this, in sufficient literature has been observed in Ethiopia context especially in football setting. As a result, the researcher aimed to investigate agility coordination and

speed as related to kicking and dribbling performance of Jimma, Woliso and Sebeta town football club players.

2. METHODS AND MATERIALS

2.1 Study Area

The researchers selected this study area because Jimma, Woliso and Sebeta football club have in the Oromia region. Jimma town football club is found in Jimma town as a result the club was taken because of its' proximity, Woliso and Sebeta town on the main car which takes individual from Jimma town to Addis Ababa city.

2.2 Study Design

Cross-sectional research design was used. In such a way, the data were collected from football players at once.

2.3 Selections of Subjects

For the purpose of this study 52 football players (17 from Jimma Club, 17 from Woliso town football club, and 18 from Sebeta town football club) were selected as the subjects.

2.4 Variables and Tools of the Study

2.4.1 Dependent Variables and Tools

2.4.1.1 Dribbling: Players dribbling performance were assessed by ball changing with zigzag run. The stopwatch was used to measure player dribbling performance.

2.4.1.2 Kicking: Players kicking performance were measured by formed pass for accuracy. Therefore, number of accuracy pass was counted out of thirty.

2.4.2 Independent Variables

2.4.2.1 Speed: Players maximum speeds were measured by flying 30 m test. Stopwatch was used to measure players' maximum speed.

2.4.2.2 Coordination: To measure player's coordination, eye-leg coordination was employed.

2.4.2.3 Agility: Athletes' agility was measure by agility t- test, the stopwatch was the materials used for the test.

2.5 Method of Data Analysis

The data obtained from field test were coded and analyzed by SPSS-20 software. Descriptive statistics such as mean, minimum, maximum, percentages and standard deviation was used to analyze agility, coordination and speed, kicking and dribbling of players that help to describe, show or summarize data of respondents in a meaningful way. In addition to this, Pearson product moment correlation coefficient was used to examine the relationship between dependent and independent variables. Finally, multiple regression analysis was used to predict effect of agility, coordination, speed in explaining kicking and dribbling of players.

2.6 Ethical Considerations

All players signed Jimma University ethical clearance guideline and approved written consent form that indicated they understood the purpose of the study, they were healthy enough to perform various and or vigorous physical activity and were willing to participate in the experimental procedures. Furthermore, participants were filled Physical Activity Readiness Questionnaire (PAR-Q).

3. RESULTS

Table 1: Descriptive statistical variables of football players' current performance (N=52)

	Agility (sec)	Coordination (sec)	Speed (sec)	Dribbling (num)	Kicking (num)
Mean	8.51	25.41	3.78	6.60	24.20
SD	±0.58	±2.85	±0.60	±1.15	±1.69

From the above mentioned Table 1, it is found that the performance of football players as mean and standard deviation (SD) shows that agility (8.51 ±0.58), coordination (25.40 ± 2.85), speed (3.77 ±0.60), dribbling (6.60 ±1.15), and kicking (24.20 ±1.69).

Table 2: Relationship between dependent variables and independent variables

Dependent Variables	Independent variables		
	Agility	Coordination	Speed
Dribbling	0.32*	0.43*	0.68*
Kicking	0.06	-0.06	-0.03

*Correlation is significant at the 0.05 level (2-tailed)

From the table 2 it is documented that the dribbling has a significant relationship with agility ($r= 0.32^*$, $p<0.05$), coordination ($r= 0.43^*$, $p<0.05$) and speed ($r= 0.68^*$, $p<0.05$). Whereas, kicking has no significant relationship with agility ($r= .06$, $p>0.05$), coordination ($r=-0.06$, $p>0.05$), and speed ($r=-0.03$, $p>0.05$).

Depending up on the Table 2 analysis, it is showed that dribbling has significant moderate relationship with agility and coordination. More importantly, dribbling has significant high relationship with speed. To the reverse, kicking shown no significant as well as almost no relationship with agility. However, no significant moderate negative relationship with coordination.

Table 3: Effect of joint independent variables on dependent variables

Wilks' Lambda–Effect	Value	F	Hypothesis df	Error df	Sig.
Intercept	0.55	19.84 ^b	2.00	49.00	0.000
Coordination	0.95	1.15 ^b	2.00	49.00	0.325
Speed	0.59	16.67 ^b	2.00	49.00	0.000
Agility	0.80	6.11 ^b	2.00	49.00	0.004

Design: Intercept + Coordination + Speed + Agility

For purposes of the study, the independent variables effects are of interest because they tell us whether or not the dribbling and kicking performance of players differ along the three dimensions of agility, coordination and speed. The column of real interest is the one containing the significance values of these *F*-ratios. For these data, speed and agility test statistics are significant with $p<0.05$ (which is less than 0.05). Whereas, coordination was found to be no significant with $p>0.05$. From this result, from table 3 we should probably conclude that the groups do indeed differ in terms of the speed and agility test. However, this effect needs to be broken down to find out exactly what's going on.

Table 4: Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected model	Dribbling	41.02 ^a	3	13.67	23.39	0.000
	Kicking	1.04 ^b	3	0.34	0.11	0.950
Intercept	Dribbling	3.89	1	3.89	6.65	0.013
	Kicking	92.38	1	92.38	30.85	0.000
Coordination	Dribbling	1.24	1	1.24	2.13	0.151
	Kicking	0.32	1	0.32	0.10	0.744
Speed	Dribbling	19.71	1	19.71	33.73	0.000
	Kicking	61.80	1	61.80	0.00	0.996
Agility	Dribbling	7.29	1	7.29	12.47	0.001
	Kicking	0.55	1	0.55	0.18	0.669
Error	Dribbling	29.23	50	0.58		
	Kicking	149.71	50	2.99		
Total	Dribbling	2422.22	54			
	Kicking	31785.00	54			
Corrected total	Dribbling	70.25	53			
	Kicking	150.75	53			

a. R Squared = 0.584 (Adjusted R Squared = 0.559)
b. R Squared = 0.007 (Adjusted R Squared = -0.053)

The result of the ANOVA analysis presented in table 4 showed row of interest is that labeled coordination (you'll notice that the values in this row are different as for the row labeled Corrected Model: this is because the model not fitted to the data contains three independent variable: group). The row labeled coordination contains an ANOVA summary table for kicking and dribbling respectively. The values of *p* indicate that there was a non-significant difference between groups in terms of both (*p* is greater than 0.05 in both cases). The multivariate test statistics led us to conclude that the groups did differ in terms of the kicking and dribbling. In contrary, the ANOVA summary table for the dependent variables is shown in the table 4. The row of interest is that labeled speed and agility (you may notice that the values in this row are the same as in the row labeled Corrected Model: this is because the model not fitted to the data contains three independent variable groups). The row labeled speed and agility contains an ANOVA summary table for kicking and dribbling respectively. The values of *p* indicate for dribbling shows that there was a significant difference between groups in terms of both (*p* is less than 0.05 in both cases). While, the values of *p* indicate for kicking shows that there was a non-significant difference between groups in terms of both (*p* is

less than 0.05 in both cases). The multivariate test statistics led us to conclude that the groups did differ in terms of the dribbling not in kicking.

Therefore, the joint independent variables explain dribbling performance by 58.4%. The researcher is confident that coordination, speed and agility would explain dribbling performance by 58.4%.

4. DISCUSSION

In this study, the speed of football players ranges between 3 to 4 seconds and they were found under excellent rank according to 35 meter speed standardized test. In a similar way, agility of football players swings between 8.5 to 9 seconds, so that they were observed in excellent rank as per agility standardized *t*-test result.

The findings of this study demonstrate that dribbling has a significant moderate relationship with agility and coordination. Moreover, dribbling has significant high relationship with speed. In contrary to dribbling, kicking shown insignificant as well as almost no relationship with agility, in the same way, insignificant moderate negative relationship with coordination. Mark (2005) confirmed in his study that fitness factors and skill tests are interrelated to each other. Similarly, the other research has shown that the basic skills without the ball have much stronger relation between speed, agility and quickness than the skills with the ball (Sporiš, Milanović, Trajković, & Joksimović, 2011). The independent variables agility, coordination and speed have positive moderate relationship with dependent variables of dribbling and kicking.

This study depicts that independently speed and agility of football players' performance affects the dribbling performance. With this correspondence, other research output similarly shown that dribbling ability may be positively influenced by the speed and agility (Singh, 2012). Only 1.7% of the active playing time involves sprinting. This accounts for 3.7% of the total distance covered during a match. The average sprint distance is 10.5-16.5 meters, and only 20% of sprints performed in football are greater than 20m (Stephens, 2004) Sprinting constitutes a multidimensional and complex motor skill, being probably the most significant physical element of performance in modern soccer (Williams, 2009).

This study shown that jointly speed and agility were significantly affected both dribbling and kicking performance of football players. This research finding shown that kicking was not influenced by agility, coordination and speed. Other research output strengthens our finding by suggesting that passing ability may not be influenced by speed, whereas agility has negative influence on passing ability (Singh, 2012).

5. CONCLUSIONS

On the basis of the findings it is concluded that dribbling has significant moderate relationship with agility and coordination. More importantly, dribbling had significant high relationship with speed. In contrary to dribbling, kicking shown insignificant as well as almost no relationship with agility. However, non-significant moderate negative relationship with coordination

Jointly, speed and agility were significantly affected both dribbling and kicking performance of football players. Separately, speed and agility significantly affect the dribbling performance of football players. Moreover, speed and agility explain the dribbling performance by 58.4. However, coordination, speed and agility no significantly affect the kicking performance of football players.

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7. REFERENCES

- Akenhead, R.M. (2014). Examining the Physical and Physiological Demands of Elite Football. (Published doctoral dissertation, Northumbria University) Ph.D. Thesis, Faculty of Health and Life Sciences and in collaboration with Newcastle United Football Club, Northumbria University Newcastle.
- Chomiak, J., Junge, A., Peterson, L., & Dvorak, J. (2000). Severe injuries in football players: Influencing factors. *American Journal of Sports Medicine*, 28(5S), S58-S68.
- ESP (2000). *Ethiopian sport policy*. Mega Printing Press.
- Fahey, T.D., Roth, W.T., & Insel, P.M. (2003). *Fit & well: core concepts and labs in physical fitness and wellness with online learning center bind-in card and daily fitness and nutrition journal* (4th ed.), (pp.31-32). USA, McGraw-Hillcompanies, Inc.
- FIFA. (2006). *The general aspect of coaching*, (p.42). FIFA Coaching Manual.
- John, F.G. (2014). *Agility training for athletic performance*. Online available at: <http://www.performbetter.com/webapp/wcs/stores/servlet/PBOnePieceVie>

- w?storeId=10151&catalogId=10751&pagename=347 (Accessed 15 August, 2015).
- Krejcie, R.V., & Morgan, D.W. (1970). *Determining sample size for research activities*. In R. Hill (1998). What sample size is 'enough' in internet survey research? *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century*, 6, 3-4.
- Mark, T.K. (2005). Correlation between speed, agility and quickness (SAQ) in elite young soccer players Serbia. *Acta Kinesiologica*, 5(2), 36-41.
- Martens, R. (1997). *Successful coaching (2nd ed.)*. USA, Human Kinematics.
- NASOU, (1999). *Teaching sport in schools: A guide to teachers and students*. Cape Town, National Book Printer, Drukkery Street.
- Neopolion, M., & Rani, U. (2014). Predict of football playing ability on selected skill related Variables & motor fitness variables of school level male football players. *Indian Journal of Applied Research*, 4(5), 540-541.
- Sheppard, J.M., & Young, W.B. (2006). Agility literature review: Classification, training and testing. *Journal of Sport Sciences*, 24(9), 919-932.
- Singh, A.B. (2012). Relationship between playing ability and selected motor fitness variables of tribal women basketball players. *International Journal of Behavioral Social and Movement Sciences*, 1(2), 6-14.
- Sporiš, G., Milanović, Z., Trajković, N., & Joksimović, A. (2011). Correlation between speed, agility and quickness (saq) in elite young soccer players. *Acta Kinesiologica*, 5(2), 36-41.
- Wilkins, B.M. (1952). The effect of weight training on speed movement. *Research Quarterly* 23, 361-369.