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**ORGINAL ARTICLE**

# Relationship between Age and the Soccer Performance in the Elite Male Soccer Players.

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**Abstract**
The aim of this study was to determine the relationship between age and the soccer performance of elite male soccer players were playing with an emphasis on post. Sample of 396 soccer players (36 goalkeeper, 168 defenders, 123 midfielders and 69 forwards) participating in the 2010 World Cup in South Africa, with a mean age of 27.23 ± 3.71 years, height 181.45 ± 6.43 cm and body mass 75.89 ± 6.46 kg were given to targeted was collected about them. One-way analysis of variance and Tukey post hoc test results showed Goalkeepers older and heavier than other post and defenders had older than midfielders and forwards, and defenders were heavier than midfielders($P<0.05$).Positive relationship between age and passes, successful passes, medium passes, and a negative correlation of age with Final Third Entries in goalkeepers, positive relationship between age with long passes, and negative relationship between age and short passes in midfielders and negative correlation between age and total shots, Penalty Area Entries, Successful Final Third Entries, Successful Passes and Medium Passes in the forwards ($P<0.05$). The findings of this study can be used in the process of talent and selecting players.
Key words: performance of soccer players, post game, age

**Introduction**
Physiological and psychological needs of soccer are different. Soccer game in special circumstances, preparation includes range of individual features composed of many abilities. According to this definition, capabilities include: physical factors, psychological and psycho motor (Thomas Reilly & A. Mark Williams. 2003). In soccer balance between fitness components depends on the level of the sport, the players position and team method and factors such as age, gender, season practice and work environment (Thomas Reilly & A. Mark Williams. 2003). A study was conducted among people born in the same year there is a difference in performance (Del Campo, DGD, Vicedo, JCP, Sixto Gonzalez Villora, SG, Jordan, ORC. 2010). Studies showed that anthropometric sizes and inherent capacity for maturity growth and age are related together (Del Campo, DGD, Vicedo , JCP, Sixto Gonzalez Villora, SG, Jordan, ORC. 2010) World first level players' age is between

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25 to 27 years (Thomas Reilly & A. Mark Williams. 2003). However, reputable European teams have young players less than 20 years and also some players played soccer in their fourth decade in the international level (Thomas Reilly & A. Mark Williams. 2003). Soccer age is organized according to chronological age rather than biological age. Advantages of body size in adolescence and youth in playing soccer is important for individuals' aspect of maturity and is negligible. However, successful performance in playing soccer depends on Multi-factor items which body features only one of its components. Some studies have shown that the players at the highest level of play run faster and act with higher intensity than the players that play at lower levels (Rienzi E, Drust B, Reilly T, Carter JEL, Martin A (2000) . Reilly T,(2003) . Mohr M, Krustrup P, Bangsbo J (2003). Ekblom B. Applied physiology of soccer. Sports Med (1986) . Bangsbo J, Lindquist F, 1992). Other studies have shown that players in each level in soccer have a specific activity profiles (Rienzi E, Drust B , Reilly T, Carter JEL, Martin A (2000 , Mohr M, Krustrup P, Bangsbo J ,(2003) , Di Salvo V, Baron R, Tschan H, Calderon Montero FJ, Bachl N, Pigozzi F, 2006) and also performance at time of match is influenced by kind of match (.Rienzi E, Drust B, Reilly T, Carter JEL, Martin A ,2000). Luhtann et. al (2001) selected attacking and defensive variables of players in the field and gate guards in Euro 2000 tournament and tried to make the final classification with the rank teams in this tournament (Luhtanen, P., Belinskij, A., Häyrinen, M. and Vänttinen, T. , 2001). This study followed by an age-related performance in talented male players with game position approach.

## Methods

### Subjects

Subjects of this study, included 396 soccer players (goal keeper: 36, defender: 168, midfielder: 123, forwarder: 69) were selected among 736 players who participated in the national team in World Cup 2010 South Africa at least 84 minutes during the match time in the playground.
All players who were replaced or fired until minute 84 excluded from statistical community Thus, players of statistical sample in totally 1098 individual matches participated in the match ground: goal keepers: 124 individual matches, defenders: 486 individual matches, midfielders: 324 individual matches and attackers: 164 individual matches respectively. In this study characteristics of match performance including total shoots, shoots on target, total crosses and successful crosses, numbers of penalty area entries, numbers of successful penalty area entries, numbers of final third entries, numbers of successful final third entries, total tackles, total blocks, total passes, total of successful passes, total of short passes, total of medium passes, total of long passes, numbers headers, distance, top speed, numbers of GK saves ,numbers of GK catches were studied. Descriptive statistics was used to describe the data for each variable and ANOVA test and Tukey test were used to find a different place. Also, the Pearson correlation coefficient was used to examine relationships between variables. Significance level for all calculations, $P<0.05$ was considered, and all statistical tests using the computer program SPSS (version 16) was performed.

## Results

Individual features in four soccer posts and their performance are presented in Table 1, 2.
Table 1, shows the older age (28.4±4.3 years), the tallest height (187.5±5.7 cm) and most heavy body mass (81.7±7.2 kg) belong to the goal keepers and the lowest age (26.2±3.3 years) belong to the forwarders, the shortest height (179.3±6.0 cm) and lightest body mass (73.8±5.6 kg) belong to midfielders ($P<0.05$).

Table 1. individual characteristics of subjects

| Variable / Group | Age (year) | Height (cm) | Body mass (kg) | BMI (kg/m$^2$) |
|---|---|---|---|---|
| **Goalkeeper (n=36)** | 28.4 ± 4.3 | 187.5 ± 5.7 | 81.7 ± 7.2 | 23.2 ± 1.6 |
| **Defender (n=168)** | 27.5 ± 3.5 | 181.4 ± 5.8 | 75.9 ± 5.8 | 23.0 ± 1.2 |
| **Midfielder (n=123)** | 26.7 ± 3.6 | 179.3 ± 6.0 | 73.8 ± 5.6 | 22.9 ± 1.4 |
| **Forward (n=69)** | 26.2 ± 3.3 | 180.8 ± 6.4 | 75.2 ± 6.6 | 22.9 ± 1.3 |

Table 2. performance properties of subjects

| Group / Variables | Goalkeeper (n=36) | Defender (n=168) | Midfielder (n=123) | Forward (n=69) |
|---|---|---|---|---|
| Total Shots | 0.00 ± 0.0 | 0.54 ± 0.8 | 1.37 ± 1.4 | 2.92 ± 2.1 |
| Shots on Target | 0.00 ± 0.0 | 0.24 ± 0.5 | 0.76 ± 1.0 | 1.77 ± 1.5 |
| Crosses | 0.00 ± 0.0 | 1.32 ± 2.1 | 2.05 ± 2.8 | 2.09 ± 2.2 |
| Successful Crosses | 0.00 ± 0.0 | 0.26 ± 0.7 | 0.44 ± 0.8 | 0.41 ± 0.7 |
| Penalty Area Entries | 1.26 ± 1.2 | 2.84 ± 3.3 | 4.30 ± 3.7 | 4.22 ± 3.4 |
| Successful Penalty Area Entries | 0.28 ± 0.9 | 0.77 ± 1.3 | 1.35 ± 1.5 | 1.26 ± 1.4 |
| Final Third Entries | 7.41 ± 4.8 | 5.27 ± 3.6 | 6.43 ± 4.0 | 3.47 ± 2.5 |
| Successful Final Third Entries | 1.72 ± 1.6 | 2.54 ± 2.2 | 3.58 ± 3.2 | 1.73 ± 1.7 |
| Tackles | 0.09 ± 0.2 | 2.96 ± 2.0 | 3.37 ± 2.1 | 1.55 ± 1.6 |
| Blocks | 0.008 ± 0.08 | 1.71 ± 1.4 | 1.52 ± 1.3 | 0.76 ± 1.0 |
| Total Passes | 17.87 ± 6.4 | 32.75 ± 15.1 | 42.00 ± 18.1 | 24.86 ± 11.8 |
| Successful Passes | 11.62 ± 5.2 | 26.84 ± 14.1 | 34.33 ± 16.8 | 18.81 ± 10.1 |
| Short Passes | 1.05 ± 1.0 | 6.29 ± 4.6 | 10.64 ± 5.4 | 9.51 ± 4.8 |
| Medium Passes | 5.83 ± 3.9 | 12.28 ± 7.0 | 23.59 ± 11.3 | 12.28 ± 7.0 |
| Long Passes | 10.96 ± 4.7 | 7.72 ± 4.7 | 7.78 ± 5.3 | 2.93 ± 2.3 |
| Headers | 0.03 ± 0.2 | 6.06 ± 3.7 | 4.01 ± 2.9 | 3.61 ± 2.9 |
| Distance | 4.22 ± 0.8 | 9.73 ± 1.0 | 10.83 ± 1.1 | 9.80 ± 1.0 |
| Top Speed | 20.36 ± 2.5 | 22.97 ± 2.4 | 23.11 ± 2.4 | 24.09 ± 2.7 |
| GK Saves | 3.45 ± 2.0 | – | – | – |
| GK Catches | 7.21 ± 3.1 | – | – | – |

The results of this study showed that a positive relationship between age and total of passes (P=0.019 and r=0.211), successful pass (P=0.007 and r=0.242) and medium passes (P=0.033 and r=0.192), and a negative relationship between age with final third entries in goal keeper post (P=0.040 and r= -0.184) and a positive relationship between age with long passes (P=0.022 and r= 0.127), and negative relationship between age with total short passes (P=0.003 and r= -0.162) in the midfield post and a negative relationship between age with total shoots (P=0.048 and r= -0.155) and penalty area enters (P=0.042 and r= -0.159) and successful final third entries(P=0.011 and r= -0.199) and successful passes (P=0.028 and r= -

0.172) and medium passes (P=0.008 and r= -0.025) in the forward posts. No such relationship between age and performance was found with the defenders.

**Discussion**

The present study showed that there is a significant difference between the skilled male soccer players which this difference was between the age of goal keeper and midfielders and forwards and the defenders and midfielders. The age of goal keepers (28.4±4.3 years), Defenders (27.5±3.5 years), midfielders (26.7±3.6 years) and forwarders (26.2±3.3 years). High performance is obvious from a young age, but many talented players, reach to peak about 25 to 27 years (Thomas Reilly & A. Mark Williams. 2003). Continued presence on the ground, the gate posts to the specific conditions experienced players with comparing others soccer posts it can concluded the presence of goal keepers in the ground for long time is challenge also in the official matches, coaches tend to use skill goal keeper. technical and tactical abilities are important for success in soccer, while some studies have studied soccer physical performance with match analysis methods by hand or computer software (Bangsbo J, Lindquist F.(1992), Bangsbo J,(1994), Drust B, Reilly T, Rienzi E,(1998), Ekblom B. Applied physiology of soccer,(1986), Krustrup P, Mohr M, Ellingsgaard H, et al,(2005), Mayhhew S, Wenger H,(1985), Mohr M, Krustrup P, Bangsbo J,(2003), Rampinini E, Bishop D, Marcora SM, et al,(2007), Reilly T,(1997), Reilly T,(2003), Rienzi E, Drust B, Reilly T, Carter JEL, Martin A, 2000), a few studies (Zeederberg C, Leach L, Lambert EV, et al,(1996), McGregor SJ, Nicholas CW, Lakomy HK, et al,(1999), Burgomaster KA, Hughes SC, Heigenhauser GJ, et al, 2005) have evaluated technical performance.

In connection with the shoot skills, this study shows that there is a significant relationship between age and total shoots, so that there is negative relationship between age and total shoots in forward post since that shoots is the short time intensive skill, factors such as pressure and tiredness of players during 90 minuets can be effective. With skills the penalty area enter, the present study showed that there was significant relation between ages with the penalty area enter. With age increase in forward post, significant decrease was observed to the penalty area enter. It is likely to be experienced to be aggressive players, who move more, but less effective perform this skill, also with increasing age the total shoots decreases. Not only technical abilities of players, but the decision making, intelligence, tactics and team play are important factors in effective technical tasks (Rampinini, E , Impellizzeri, F. M., Castagna, C., Coutts, A. J., & Wisloff, U. (2009) , Williams AM, Reilly T. Talent identification and development in soccer. J Sports Sci 2000).

About skill of final third entries, this study shows that there is significant relation between age and skill of final third entries and significant negative relation with age in goal keeper post, also a negative correlation with age was significant in the forward posts. Researches have shown that not only compete in a match the potential for conflict is important to be successful in a high level of professional soccer (Rampinini, E., Impellizzeri, F. M., Castagna, C, Coutts, A. J. , & Wisloff, U. (2009), Mohr M, Krustrup P, Bangsbo J. Match performance of high-standard soccer players with special reference to development of fatigue. J Sports Sci 2003). About the total passing s, this study showed a clear relationship exists between ages with passing so that passing skills had a positive significant relationship with age in goal keeper post. Technical analysis of the competition has shown same features in performance of passing by players in the leagues in Spain and England. Players in both leagues, with 70 to 81 rate with successful passes. However, forwarders in Spanish League were successful in passing than the British League, but forwarders in

Spanish League had less success the in other posts (Dellal, A., Chamari, K., Wong, D, Ahmaidi, S., Dominique Keller, D., Barros, R., Gian Nicola Bisciotti, G., Carling, C. 2011). About successful passes, the present study showed a significant relationship exists between the ages with successful passes. So that in the goal keeper post with increasing age a significant positive relationship and in forward post a significant negative correlation were seen. In Italy Serie A soccer, the successful teams had successful pass percentage than less success teams, while distance players of successful teams was less than unsuccessful teams (Rampinini, E., Impellizzeri, F. M , Castagna, C., Coutts, A. J., & Wisloff, U. 2009). While this result was contrary in England (Rampinini, E., Coutts, A. J., Castagna, C., Sassi, R., & Impellizzeri, F. M, 2007). About a short passes, this study showed a significant relationship exists between ages with a short passes. So that with increasing age in midfield post, short passing numbers decrease. In Italian Soccer Serie A, no difference in short pass between first and second halves was observed. Also found no significant difference between successful and less successful teams in short passes (Rampinini, E., Impellizzeri, F. M., Castagna, C., Coutts, A. J., & Wisloff, U. 2009). About long passes, this study showed there is a significant relationship between ages, with a long passes. So that in the midfield with increasing age was a significant positive relationship. Due to high technical expertise and ability to successfully hit the single-pass to running than without the ball. In relation to catching ball by goal keeper, the present study did not show relationship between catching ball by goal keeper and age.

The results of study suggested that the most parameters related to technical skills to be successful in high level professional soccer are engagement of ball with short passes, successful short passes, tackles, dribbling, total shoot and shoot to the gate (Rampinini, E , Impellizzeri, F. M , Castagna, C., Coutts, A. J., & Wisloff, U. 2009 ).

**Conclusion**

The results of this research showed that in goal keeping post with increasing age, the number of final third entries decreased. But number of passes and successful and medium passes increased. Results showed that in midfield post with increasing age, the number of short pass decreased and number of long pass increased. In the forward post results showed that with increasing age the number of shoot and the final third entries, successful final third entries and the number of penalty area entries and successful and long passes decreased. In defending post the results showed no relationship between age and performance. The results of present research show that importance of individual differences and characteristics of the drill, so that with careful and proper planning with the player's characteristics and the team training program can be formulated.

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