

## **Technical demands across playing positions of the Asian Cup in male football**

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**Short Title:** Technical demands of the Asian Cup

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## **Abstract**

*The aim of this study was to compare technical variables by playing positions in football during the 2015 Asian Cup. Top-level male football players (n=202) that completed the full 90-min game were considered. Match-analysis data were collected using OPTA Sportsdata ([www.optasports.com](http://www.optasports.com)). Kruskal-Wallis H non-parametric test revealed that external midfielders (EM) scored more goals than fullbacks (FB) (p=0.042), and that FB had less attempts (attempt to score a goal, either on or off target) than central midfielders (CM), EM and forwards (FW), whereas central defenders (CD) had less attempts than FW (p<0.05). CM performed more passes than CD, EM and FW, while FW performed less passes than CD, FB and CM. CD and CM performed more successful passes than FB and FW (p<0.05), and CM also had more passes than EM (p<0.05). Moreover, FW had more aerial duels (50-50 contests between two players from opposing teams) than CM, FB and EM (p<0.05). Similar numbers of aerial duels occurred for CD and FW. Ground duels occurred less (p<0.05) frequently for CD compared to FB, CM, EM and FW. In conclusion, differences in technical events were observed between the various playing positions during competitive elite football matches, making it valuable considering the technical demands of players during group training as well as individualised training.*

**Keywords:** Soccer, association football, positional analysis, technical analysis, notational analysis

## 1. Introduction

Football is a highly complex team sport, where performance is a consequence of physical, technical and tactical skills of the individual athlete (Bangsbo, 1994). The physical dimension of football performance is extensively studied over the last three decades, while less is known about technical and tactical demands of elite football.

Player monitoring during games using video analysis and other technological approaches has aided coaches and athletes in improving performance and training modalities, and is standard procedure in most high level teams (Bartlett, 2001). Notational analysis allows technical performance indicators to be quantified during competitive game. The type of analysis is both quantitative and qualitative in nature, since the events and indicators are countable. However, the events can also be analysed for quality and grouped accordingly (e.g. successful/unsuccessful). The principal technical performance indicators to be assessed in technical analysis were shots, passes and passing accuracy (Hughes, Robertson, & Nicholson, 1988; Winkler, 1996). However, nowadays improved technological approaches enable a more detailed investigation of performance indicators (shots on target, shots blocked, shots from open play, long passes, short passes, crosses, etc.) (Liu, Gomez, Lago-Peñas, & Sampaio, 2015; Rampinini, Impellizzeri, Castagna, Coutts, & Wisloff, 2009), which gives more precise and applicable data. The ability to provide precise information about an individual player's technical performance can significantly modify playing behaviour and promote successful performance, which has been identified as the best indicator of success (Castellano, Casamichana, & Lago, 2012; Collet, 2013; Franks & McGarry, 1996). Moreover, this type of analysis has been demonstrated to be useful for understanding the demands of the game over time and helps improve the style of training individually.

A common focus of many research projects in match analysis is to describe the activity patterns of a team (Rampinini, Coutts, Castagna, Sassi, & Impellizzeri, 2007; Sarmiento et al., 2014) or the differences between players in different tactical roles (Bradley et al., 2011). Moreover, a number of studies have focused on predicting goal scoring and match outcome based on various technical parameters (Rampinini et al., 2009; Rumpf, Silva, Hertzog, Farooq, & Nassis, 2017). Over the last decade focus has shifted towards a more individual approach, and positional role as well as match performance have been studied in relation to physical activity patterns, frequency and efficacy of game actions (Dellal et al., 2011; Dellal, Wong, Moalla, & Chamari, 2010; Sarmiento et al., 2014). However, limited information exists on the technical demands of different playing positions (Dellal et al., 2011; Dellal et al., 2010; Taylor, Mellalieu, &

James, 2004). In the literature there are remarkably few studies analysing technical demands in elite players (Dellal et al., 2011; Dellal et al., 2010; Taylor, Mellalieu, & James, 2004). These are solely performed on European players from the big leagues and no study has, to our knowledge, reported technical data on Asian elite players. Since it is likely to be a cultural impact on style of playing and training philosophies, information on Asian players are highly warranted.

For football coaches and professionals dealing with training prescription in elite football, understanding the development of the game is crucial for improved design and organisation of individual training programmes. Thus, the aim of this study was to identify differences in technical variables between different outfield positions in elite male players during official competitive games during the Asian Cup.

## **2. Material and Methods**

### **2.1 Subjects**

202 top-level male football players from 16 national teams were monitored during the 2015 Asian Cup. A total of 32 games played at five different venues were analysed.

### **2.2 Experimental design**

Technical and tactical analyses were performed for all players during the Asian Cup held in Australia in 2015. Only players who played a full 90 min were included. For each player, the most frequent playing position was chosen and data from these games were used. If a player only had two full games, the game in which the player played in their normal position was included in the analysis.

### **2.3 Data collection**

Players were categorised by playing position as central defenders (CD, n=43), full-backs (FB, n=41), central midfielders (CM, n=56), external midfielders (EM, n=31) and forwards (FW, n=31). The teams used different formats: 4-1-4-1, 4-2-3-1, 4-3-3, 4-4-2, 5-4-1, 5-3-2 but each position chosen in accordance with OPTA Sportsdata (see below). 44 technical variables were selected and divided into three groups: offensive tactical actions (34) and defensive technical actions (10).

The operational definitions of these variables are as follows (Liu et al., 2015):

- Goal: While this may seem obvious, different governing bodies have different rules and Opta usually works with the relevant people to reflect their official decisions on goalscorers.
- Attempt: An attempt to score a goal made with any (legal) part of the body, either on or off target.
- Shot from inside the box: A goal attempt made from inside the penalty box.
- Shot from outside the box: A goal attempt made from outside the penalty box.
- Dribble: An attempt by a player to beat an opponent with the ball.
- Touches: The sum of all events where a player touches the ball, i.e. excluding events like aerial duels lost or challenges lost.
- Foul won: Where a player wins a free-kick or penalty for their team after being fouled by an opposing player.
- Pass: An intentional transfer of the ball from one player to another.
- Key pass: The final pass or pass-cum-shot leading to the recipient of the ball having an attempt at goal without scoring.
- Long pass: An attempted pass of 25 yards or more.
- Short pass: An attempted pass of less than 25 yards.
- Cross: a pass from a wide position into a specific area in front of the goal.
- Passes broken down by area of the pitch, e.g. own half/opposition half or defensive/middle/final third.
- Pass direction, i.e. backwards/sideways/forwards.
- Tackles: Where a player connects with the ball in a ground duel and the player in possession of the ball loses possession. The tackled player must clearly be in possession of the ball before the tackle is made.
- Clearance: An action in which a player in a defensive position kicks or heads the ball away with no intended recipient.
- Interception: Where a player intentionally intercepts a pass by moving into the intended line of the ball.
- Recovery: Where a player regains possession of the ball when it breaks loose or is played directly to him.
- Foul conceded: Any infringement that is penalised by a referee as foul play.
- Aerial/ground duel: A 50-50 contest between two players from opposing teams. In all instances, variables involving percentage units indicate successful actions.

## **2.4 Procedures**

Data were collected using OPTA Sportsdata ([www.optasport.com](http://www.optasport.com)). The data employed in the current study were collected from Asian Football Federation whose data recourse is OPTA Sportsdata Company. The reliability of the tracking system (OPTA Client System) has been verified (Liu, Hopkins, Gómez & Molinuevo 2013) and showed that team match events coded by independent operators using this system reached a very good agreement. The study was approved by the Asian Football Federation and the local ethics committee.

## **2.5 Statistical analysis**

Differences in playing positions for various technical variables were analysed using the Kruskal-Wallis H non-parametric test. In addition, ranges, 25<sup>th</sup>, 50<sup>th</sup> and 75<sup>th</sup> percentiles were determined using exploratory data analysis. Significance was set as  $p < 0.05$ . Statistical analyses were performed with SPSS Statistics 24 (IBM, UK) and modified Excel spreadsheets.

### **3. Results**

#### **3.1 Offensive tactical actions**

Only minor differences in goals scored were found between positions as EM scored more goals than FB ( $P < 0.05$ ) with no other differences between positions. FB also had less attempts ( $p < 0.05$ ) than CM, EM and FW, while CD had less attempts than FW. All the positions had similar success in respect of attempts on target. Shots from outside the box were similar for all positions, but in respect of shots from inside the box, FB had less shots than other positions and FW had more shots than CD, FB and CM ( $p < 0.05$ ). In both instances – shots from inside or outside the box – all positions had equal success, whereas in success rate CD were more successful than FB for both shots instances. Total dribbles for CD were less ( $p < 0.05$ ) than for other positions, but with a similar success rate. FB and CM had more touches than CD ( $p < 0.05$  for FB only), EM and FW ( $p < 0.05$ ). Furthermore, FB, CM, EM and FW won more fouls than CD.

In respect of total passes, CM had the highest proportion of passes (52.0%) and FW the lowest (25.0%). CM performed more passes than CD, EM ( $p < 0.05$ ) and FW ( $p < 0.05$ ), while FW performed less passes than CD, FB ( $p < 0.05$ ) and CM ( $p < 0.05$ ). The most successful position was CD. CD and CM made more ( $p < 0.05$ ) successful passes than FB and FW, while CM also had more passes than EM. Key passes for CD were less ( $p < 0.05$ ) than for all other positions. In respect of total passes in their own half, EM and FW made less ( $p < 0.05$ ) passes than CD, FB and CM, with CM having the highest success rate (93.3%) and FW the worst (87.5%). In respect of passes inside the opposition's half, CD made less passes than FB ( $p < 0.05$ ), CM ( $p < 0.05$ ), EM and FW, while CM made more passes than FW. The least successful positions in terms of passes inside the opposition's half were CD (67.2%) and FW (66.7%), compared with CM's success rate of 79.7%.

Furthermore, when separating the pitch into three parts, we note that CD made more ( $p < 0.05$ ) passes in the defensive third, while no differences occurred in the success rate from 90.5% to

100% for all the positions. In the middle third, CM made more passes than CD, FB, EM and FW ( $p<0.05$ ). In contrast, FW made fewer ( $p<0.05$ ) passes in the middle third than CD, FB and CM. CM was the most successful position on the pitch (90.3%), with CD, FB ( $p<0.05$ ) and FW having the fewest successful passes in the middle third. In the final third, CD made fewer ( $p<0.05$ ) passes than all other positions and made less successful passes than CM and EM ( $p<0.05$ ), who made fewer passes than FW.

CM performed more short passes than CD ( $p<0.05$ ), FB, EM ( $p<0.05$ ) and FW ( $p<0.05$ ), and FB performed more short passes than FW, while CD had the highest success rate (91.4%) and FW the worst (70.6%). Long passes differed ( $p<0.05$ ) between all positions (CD>FB>CM>EM>FW), with FB have the lowest success rate (41.7%) and CM the highest (62.0%). In terms of total crosses per game, FB rated higher (3.3 crosses) than CD ( $p<0.05$ ), CM ( $p<0.05$ ) and FW ( $p<0.05$ ). CM made more crosses than CD. No differences were observed between positions for the success rate of crosses.

In respect of direction of passes, CD, FB and CM made more ( $p<0.05$ ) forward passes than EM and FW. CD made fewer ( $p<0.05$ ) backwards passes than FB, CM, EM and FW. Also, FB made fewer backwards passes than EM, who made the most (9 backwards passes per game). Sideways passes left and right were the same, with CM making more sideways passes than other positions but without difference with EM in the passes to the right. In both sideway passes, FW had less ( $p<0.05$ ) passes, 5.0 passes and 6.5 passes to the left and right respectively. Data for offensive tactical actions are presented in Table 1.

**\*\*Table 1 near here\*\***

### **3.2 Defensive technical actions**

FB and CM made the same number of tackles in total (2.3 per game). FB made more tackles than CD, EM and FW ( $P<0.05$ ), while CM made more ( $p<0.05$ ) tackles than FW. All the positions had similar success rate of tackles won from 87.5% to 100%. FW had more aerial duels than CM ( $p<0.05$ ), FB ( $p<0.05$ ) and EM. CD and FW had a similar number of aerial duels (3.0 and 5.0, respectively). CD had fewer ( $p<0.05$ ) ground duels than FB, CM, EM and FW. CD and FB had more successful aerial duels than EM and more successful ground duels than FW. CD made more clearances than FB, while both made more ( $p<0.05$ ) clearances than CM, EM and FW. In respect of interceptions, FW made fewer than CD, FB ( $p<0.05$ ) and CM. EM also made fewer than FB, who made the most (2 per game). CM had more recoveries than

CD ( $p < 0.05$ ), FB and FW ( $p < 0.05$ ), while FW had fewer recoveries than FB, CM ( $p < 0.05$ ) and EM. Furthermore, CD had fewer recoveries than EM. CD conceded more fouls than CM and FW. Data for defensive technical actions are presented in Table 2



**\*\*Table 2 near here\*\***

#### **4. Discussion**

The main aim of the study was to identify positional differences in technical variables in elite male Asian players during official competitive games. The major finding of the present study was that execution of technical variables varies in relation to playing position in a large sample of Asian male top-level players, which makes it worthwhile considering for coaching staff in relation to transfer for a specific position, the usage of data for player evaluation and for planning of group or individualised training in order to better meet the game demands in a specific manner. The present study is performed on Asian male top-level players and is the first study investigating a large sample of players representing the entire region. Thus, regional differences in football culture and style may also be associated to the differences above.

More specifically, we found, that fullbacks perform less attacking actions like attempts and shot from inside the box compared to other playing positions most likely because fullback have less attacking opportunities, as the position is wider on the pitch. In addition to this, the fullback position usually deploys shorter players (Buchheit, Mendez-Villanueva, Simpson, & Bourdon, 2010), who have defending roles during set-pieces or perform the set-pieces. Indeed, professional senior fullbacks, wide midfielders and forwards covered a greater total distance during match-play than other positional groups (Di Salvo, Baron, Tschan, Calderon Montero, Bachl, & Pigozzi, 2007; Rampinini et al., 2007). Thus, smaller and, especially, lighter players are normally selected as this can be an advantage in this respect, albeit a disadvantage for set-pieces. On the other hand, central defenders are more powerful than full-backs, central midfielders and external midfielders (Rampinini et al., 2007) and as a defensive position demonstrated a similar frequency of attempts and shots from inside the box compared other positions, except the forwards, which probably is a result from the attempt to score by headers after set-pieces. Specifically, central defenders are taller and heavier than other playing positions, giving them an advantage at set-pieces (Gil, Gil, Ruiz, Irazusta, & Irazusta, 2007; Malina, Eisenmann, Cumming, Ribeiro, & Aroso, 2004; Wong, Chamari, Dellal, & Wisloff, 2009). In contrast to other studies on European players, we found that forwards had more shots than midfielders and defenders (Dunn, Ford, & Williams, 2003; Taylor et al., 2004; Williams, Horn, & Hodges, 2003), which partly may relate to regional differences in playing style. Moreover, no differences were found between the other playing positions in dribbling, except

that the central defenders that had less dribbles than any other positions. This is in contrast to studies on European players demonstrating that the midfield units (CM and EM together) displayed the highest dribbling frequency during a game (Dunn et al., 2003; Taylor et al., 2004; Williams et al., 2003). A possible explanation for our finding that central defenders had the lowest frequency of dribbles, could be that central defenders take less risks in dribbling than other positions. Additionally, central defenders performed less touches and fouls won, that support our report that this position has less ball possession compared to the other tactical roles. Moreover, the finding that CD had the highest success rate in dribbling may support this notion. In a study by Dellal et al. (2010), central defenders, central defensive midfielders and central attacking midfielders across different European leagues also demonstrated comparable patterns in the number of ball contacts., Nevertheless in our findings, we observed that fullbacks and central midfielders representing Asian national teams had the most touches compared to other positions.

The passing analysis demonstrated that central midfielders performed more passes in total, short passes, passes to the middle third, as well as passes to the left and right. This is to be expected, because most teams build their attacks through the midfield, and that central midfielders may be involved in transitions from defence to attack more than the other positions. In one study (Dellal et al., 2010), European central defenders had the lowest score for successful passes compared to other positions, in contrast to our finding that Asian central defenders were the most successful in terms of total passes, albeit with a lower proportion of key passes than other positions. Central defenders passing frequency has increased substantially in the last decade due to teams using the backline more effectively in keeping with possession-based play (Bush, Archer, Hogg, & Bradley, 2015), but this is not matched by goal assists. Furthermore, in a study by (Dellal et al., 2011) a technical analysis of match-play showed similar characteristics in passing performance between elite players in two European leagues, with both achieving a success rate between 70% and 81% in passing, comparable to the rate in our study (67% to 85%). However, forwards in La Liga (Spanish premier league) attained better success rates when passing than forwards in the English Premier League. The forwards were the least successful across all positions in our results in passing succes rate, and one possible explanation for our findings may be that Asian national teams have a more direct style of play than the teams in the Spanish La Liga who prefer a more possession based style (Carling, Williams, & Reilly, 2005; Dellal et al., 2011). Moreover, crossing frequency was higher for fullbacks and external midfielders, which is likely to be explained by these positional

roles having a wider position on the pitch, which is in agreement with studies from European leagues (Hughes & Probert, 2006; Van Lingen, 1998). However, interestingly, our finding that the fullbacks performed the highest proportion of crosses may portray the modern fullback to have a major attacking role outside the box.

In the aforementioned study by Dellal et al. (2011), the forwards from two different leagues in Europe made substantially fewer passes towards the opponent's goal than other playing positions. Our results showed that Asian CD made fewer passes than all other positions not only in the final third, but also in the opposition's half. In the study by Dellal and colleagues (2011), this disparity was due to the specific role of forwards, as these players often had their back to goal during link-up play. One potential explanation could be that nowadays forwards change position and move around on the pitch more frequently, with the central defenders maintaining stricter in their positions and passing mostly in their own half (defensive third and middle third) to transfer the ball to central midfielders and fullbacks. In addition, long passes were more pronounced for defenders and decreased in more offensively oriented positions. This is to be expected, because defenders are positioned furthest from the opponent's goal. Backwards passes executed by central defenders are rarely observed, possible passing to goalkeepers when pressurised by opponents. As we mentioned before, attacking players (forwards and external midfielders) have their back to goal during the build-up play (Dellal et al., 2011), which may explain the fewer forward passes observed in these positions compared with the other position, who start the build-up play from defence and transfer the ball with forwards passes.

Central defenders had the most successful aerial and ground duels, which is in line with findings from the Spanish and English Premier League (Dellal et al., 2010). Moreover, forwards had similar number of aerial duels as central defenders but more than fullbacks and both midfield positions. The specific training, usually with many headings, performed to respond to the demands of playing in defensive positions for central defenders, but also in attacking positions for forwards. Modern attacking players are generally shorter than defenders (Wong et al., 2009), but coaches probably need to reconsider the requirements of this position and type of training as our results showed that forwards performed many aerial duels. Similar for external midfielders, as they had at least 2.0 aerial duels per game and the success rate in these duels was low (22.5%), possible for the same reason this players normally have more skills in relation to speed than aerial duels. However, it has been found that forwards loose more balls and duels (Dellal et al., 2010), which is also supported by our investigation, where

forwards had a lower success rate in ground duels but had a greater proportion of ground duels than other positions, suggesting that forwards could benefit from focusing more on training ground duels. The low success rate for forwards may also be related to the small space and facing the strongest players in duels in the opponent's defence. Earlier investigators consistently reported that defensive players make the greatest number of clearances (Dunn et al., 2003; Taylor et al., 2004; Williams et al., 2003), which agrees with our finding for both central defenders and fullbacks. A study by Hughes and Probert (2006) supported the notion that interceptions are very important for the defensive positions (central defenders and fullbacks). We observed that central defenders, fullbacks and central midfielders made a similar number of interceptions, suggesting that forwards stay high and in front of the opponent defenders, without giving a possibility of 1vs1 as proposed by (Van Lingen, 1998). As we have already reported, the central midfield position is an important position because many teams build their attack from midfield, making a lot of short passes, and we also expected to see that they make a lot of recoveries from unsuccessful passes. The midfielders win back the ball when it breaks loose more frequently than other defensive positions (central defence and fullbacks) but also more than the attacking positions (external midfielders and forwards). Furthermore, central defenders interestingly made less fouls, compared to full backs, central midfielders, external midfielders and forwards , which may be associated with fouls being made close to the own goal usually leading to a scoring opportunity to the opponent.

## **5. Limitations**

The present study benefits from using a cohort of top-level Asian football players taking part in highly competitive matches. However, we could obviously not control the tactical behaviour of each team and the variability of the positions depending on team system and style of play. Furthermore, we could not control the data quality and the possible inter-operator variability. Future research could therefore take into account more contextual variables such as the severity of matches won/lost, the effect of tactical formations and physical parameters.

## **6. Conclusions**

To summarise, we observed that central defenders carry out attacking actions mainly from set pieces, less ground duels than other positions, more long passes than other positions, less fouls won, less fouls conceded, less dribbles, no crosses and no key passes. Full back made less attacking actions in the box (attempts, shots from inside the box), but more attacking actions

outside the box (dribbles, touches, crosses, pass forward) and the same time defensive actions (ground duels, clearances, interceptions, recoveries). Furthermore, central midfielder characterized as the link between defence and attack with different kinds of pass, creating the transition of the game and the same time responsible for the recovery of the ball when the possession is lost. External midfielder describes us an attacking position similar with the forward having more passes backward and less passes forward with many dribbles, attempts on target, passing combination, crosses and ground duels for 1vs1 but with more recoveries in the middle of the field and unsuccessful aerial duels. Forward position sketches a player with all the attacking actions (attempts, shots from inside the box, better success rate in shooting, dribbles) but less passing combination with less successful rate when they carried out. Finally, interestingly they produce more aerial duels than any other position in a game. Taken together, this is the first study performed on players in the region of Asia in relation to technical profiling. We observed differences in the technical actions of the various playing positions during competitive elite Asian football games, which makes it worthwhile considering the technical demands on the players when planning group and individualised training in order to better meet the game demands.

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## 8. References

- Bangsbo, J. (1994). The physiology of soccer--with special reference to intense intermittent exercise. **Acta physiologica Scandinavica. Supplementum**, 619, 1-155.
- Bradley, P. S., C. Carling, D. Archer, J. Roberts, A. Dodds, M. Di Mascio, D. Paul, A. G. Diaz, D. Peart, and P. Krstrup. (2011). The effect of playing formation on high-intensity running and technical profiles in English FA Premier League soccer matches. **Journal of sports sciences**, 29 (8):821-30. doi: 10.1080/02640414.2011.561868.
- Bartlett, R. (2001). Performance analysis: can bringing together biomechanics and notational analysis benefit coaches? **International Journal of Performance Analysis in Sport**, 1(1), 122-126. doi:10.1080/24748668.2001.11868254
- Buchheit, M., Mendez-Villanueva, A., Simpson, B. M., & Bourdon, P. C. (2010). Match running performance and fitness in youth soccer. **International Journal of Sports Medicine**, 31(11), 818-825. doi:10.1055/s-0030-1262838
- Bush, M. D., Archer, D. T., Hogg, R., & Bradley, P. S. (2015). Factors influencing physical and technical variability in the English Premier League. **International journal of sports physiology and performance**, 10(7), 865-872. doi:10.1123/ijssp.2014-0484
- Carling, C., Williams, A. M., & Reilly, T. (2005). The handbook of soccer match analysis. Abingdon, A Systematic Approach to Improving Performance (1st ed., 184 pages). London: Routledge.
- Castellano, J., Casamichana, D., & Lago, C. (2012). The Use of Match Statistics that Discriminate Between Successful and Unsuccessful Soccer Teams. **Journal of human kinetics**, 31, 139-147. doi:10.2478/v10078-012-0015-7
- Collet, C. (2013). The possession game? A comparative analysis of ball retention and team success in European and international football, 2007-2010. **Journal of Sports Sciences**, 31(2), 123-136.
- Dellal, A., Chamari, K., Wong, D. P., Ahmaidi, S., Keller, D., Barros, R., . . . Carling, C. (2011). Comparison of physical and technical performance in European soccer match-play: FA Premier League and La Liga. **European Journal of Sport Science**, 11(1), 51-59.
- Dellal, A., Wong, D., Moalla, W., & Chamari, K. (2010). Physical and technical activity of soccer players in the French First League-with special reference to their playing position. **International Sportmed Journal**, 11(2), 278-290.
- Di Salvo, V., Baron, R., Tschan, H., Calderon Montero, F. J., Bachl, N., & Pigozzi, F. (2007). Performance characteristics according to playing position in elite soccer. **International journal of sports medicine**, 28(3), 222-227. doi:10.1055/s-2006-924294
- Dunn, A., Ford, P., & Williams, M. (2003). A technical profile of different playing positions. **Insight**, 6(4), 41-45.
- Franks, I., & McGarry, T. (1996). The Science of match analysis. In T. Reilly (Ed.), **Science and Soccer** (pp. 363-375). London E&FN.

- Gil, S. M., Gil, J., Ruiz, F., Irazusta, A., & Irazusta, J. (2007). Physiological and anthropometric characteristics of young soccer players according to their playing position: relevance for the selection process. **Journal of Strength and Conditioning Research**, 21(2), 438-445.
- Hughes, M., & Probert, G. (2006). A technical analysis of elite male soccer players by position and success. In H. Dancs, M. Hughes, & P. O'Donoghue (Eds.), **Notational Analysis of Sport-VII** (pp. 76-91). Cardiff: UWIC.
- Hughes, M., Robertson, K., & Nicholson, A. (1988). An analysis of 1984 World Cup of Association Football. In T. Reilly, A. Lees, K. Davids, & W. Murphy (Eds.), **Science and Football**. London E&FN Spon.
- Junge, A., Langevoort, G., Pipe, A., Peytavin, A., Wong, F., Mountjoy, M., Beltrami, G., Terrell, R., Holzgraefe, M., Chrales, R., Dvorak, J. (2006). Injuries in team sport tournaments during the 2004 Olympic Games. **American Journal of Sports Medicine**, 34(4), 565-576.
- Liu, H., Gomez, M.-Á., Lago-Peñas, C., & Sampaio, J. (2015). Match statistics related to winning in the group stage of 2014 Brazil FIFA World Cup. **Journal of Sports Sciences**, 33(12), 1205-1213.
- Liu, H., Hopkins, W., Gómez, A. M., & Molinuevo, S. J. (2013). Inter-operator reliability of live football match statistics from OPTA Sportsdata. **International Journal of Performance Analysis in Sport**, 13(3), 803-821.
- Malina, R. M., Eisenmann, J. C., Cumming, S. P., Ribeiro, B., & Aroso, J. (2004). Maturity-associated variation in the growth and functional capacities of youth football (soccer) players 13-15 years. **European journal of applied physiology**, 91(5-6), 555-562.
- Rampinini, E., Coutts, A. J., Castagna, C., Sassi, R., & Impellizzeri, F. M. (2007). Variation in top level soccer match performance. **International journal of sports medicine**, 28(12), 1018-1024. doi:10.1055/s-2007-965158
- Rampinini, E., Impellizzeri, F. M., Castagna, C., Coutts, A. J., & Wisloff, U. (2009). Technical performance during soccer matches of the Italian Serie A league: effect of fatigue and competitive level. **Journal of science and medicine in sport**, 12(1), 227-233.
- Rumpf, M. C., Silva, J. R., Hertzog, M., Farooq, A., & Nassis, G. (2017). Technical and physical analysis of the 2014 FIFA World Cup Brazil: winners vs. losers. **The Journal of sports medicine and physical fitness**, 57(10), 1338-1343.
- Sarmento, H., Marcelino, R., Anguera, M. T., CampaniCo, J., Matos, N., & LeitAo, J. C. (2014). Match analysis in football: a systematic review. **Journal of Sports Sciences**, 32(20), 1831-1843.
- Stolen, T., Chamari, K., Castagna, C., & Wisloff, U. (2005). Physiology of soccer: an update. **Sports Medicine**, 35(6), 501-536.

- Taylor, J. B., Mellalieu, S. D., & James, N. (2004). Behavioural comparisons of positional demands in professional soccer. **International Journal of Performance Analysis in Sport**, 4(1), 81-97.
- Van Lingen, B. (1998) **Coaching Soccer**. Spring City, USA: Reedswain.
- Williams, A., Horn, R., & Hodges, N. (2003). Skill acquisition. In T. Reilly & A. Williams (Eds.), **Science and soccer** (2nd ed., pp. 198-213). London: Routledge.
- Winkler, W. (1996). Computer/video analysis in German soccer. In M. Hughes (Ed.), **Notational Analysis of Sport** (I & II ed., pp. 19±31). Cardiff: UWIC.
- Wong, P. L., Chamari, K., Dellal, A., & Wisloff, U. (2009). Relationship between anthropometric and physiological characteristics in youth soccer players. **Journal of Strength and Conditioning Research**, 23(4), 1204-1210.



**Table 1 Offensive tactical actions**

	Goals (n)	ATTEMPS (n)	ATT ON TARGET (%)	Shots from Inside Box (n)
CD	0.0 (0.0-0.0)	0.4 (0.0-0.9) <sup>c</sup>	0.0 (0.0-50.0)	0.3 (0.0-0.5) <sup>b,c</sup>
FB	0.0 (0.0-0.0) <sup>d</sup>	0.0 (0.0-0.2) <sup>C,D,E</sup>	0.0 (0.0-55.0)	0.0 (0.0-0.0) <sup>a,c,d,E</sup>
CM	0.0 (0.00-0.00)	0.7 (0.0-1.0) <sup>B</sup>	16.7 (0.0-66.7)	0.0 (0.0-0.6) <sup>b,c</sup>
EM	0.0 (0.0-0.3) <sup>b</sup>	1.0 (0.0-1.5) <sup>B</sup>	50.0 (0.0-68.8)	0.5 (0.0-1.0) <sup>b</sup>
FW	0.0 (0.0-0.3)	2.0 (1.0-2.0) <sup>a,B</sup>	50.0 (0.0-57.1)	1.0 (0.0-2.0) <sup>a,B,c</sup>
	SUCCESSFUL SHOTS FROM INSIDE BOX (%)	SHOTS FROM OUTSIDE BOX (n)	SUCCESSFUL SHOTS FROM OUTSIDE BOX (%)	TOTAL DRIBBLES (n)
CD	41.7 (0.0-100.0) <sup>b</sup>	0.0 (0.0-0.0)	41.7 (0.0-100.0) <sup>b</sup>	0.0 (0.0-0.5) <sup>B,C,D,E</sup>
FB	0.0 (0.0-0.0) <sup>a</sup>	0.0 (0.0-0.0)	0.0 (0.0-0.0) <sup>a</sup>	1.5 (0.5-2.4) <sup>A</sup>
CM	0.0 (0.0-91.7)	0.0 (0.0-0.8)	0.0 (0.0-66.7)	1.0 (0.3-2.0) <sup>A</sup>
EM	33.3 (0.0-100.0)	0.0 (0.0-1.0)	0.0 (0.0-58.3)	2.7 (1.0-4.5) <sup>A</sup>
FW	66.7 (0.0-100.0)	0.0 (0.0-1.0)	0.0 (0.0-33.3)	2.0 (0.5-2.5) <sup>A</sup>
	SUCCESSFUL DRIBBLES (%)	Touches (n)	Total Fouls Won (n)	Key Passes (n)
CD	100.0 (61.7-100.0)	48.9 (37.3-63.5) <sup>B,c</sup>	0.5 (0.0-1.0) <sup>b,c,d,e</sup>	0.0 (0.0-0.1) <sup>B,C,D,E</sup>
FB	50.0 (33.3-75.0)	71.0 (61.6-79.4) <sup>A,d,E</sup>	1.1 (1.0-2.0) <sup>a</sup>	0.6 (0.3-1.0) <sup>A</sup>
CM	50.0 (37.7-100.0)	65.8 (55.6-82.5) <sup>a,d,E</sup>	1.0 (0.5-1.6) <sup>a</sup>	1.0 (0.0-1.2) <sup>A</sup>
EM	50.0 (38.3-80.8)	52.0 (41.3-62.5) <sup>b,c</sup>	1.0 (1.0-2.0) <sup>a</sup>	1.0 (0.0-3.0) <sup>A</sup>
FW	47.0 (22.9-100.0)	40.0 (33.0-47.5) <sup>B,C</sup>	1.0 (1.0-2.5) <sup>a</sup>	1.0 (0.3-1.0) <sup>A</sup>
	TOTAL PASSES (n)	TOTAL SUCCESSFUL PASSES (%)	TOTAL PASSES OWN HALF (n)	SUCCESSFUL PASSES OWN HALF (%)
CD	35.6 (25.5-49.5) <sup>c,e</sup>	85.3 (76.4-89.3) <sup>B,E</sup>	24.2 (17.2-33.1) <sup>D,E</sup>	92.2 (89.1-94.9)
FB	43.6 (38.4-50.0) <sup>E</sup>	75.0 (65.6-80.9) <sup>A,C</sup>	17.1 (14.2-21.3) <sup>d,E</sup>	88.0 (81.9-91.8) <sup>c</sup>
CM	52.0 (41.8-64.4) <sup>a,D,E</sup>	83.3 (79.3-88.1) <sup>B,d,E</sup>	21.3 (15.1-26.5) <sup>D,E</sup>	93.3 (89.6-96.4) <sup>b</sup>
EM	35.0 (29.0-42.0) <sup>C</sup>	77.5 (74.0-79.8) <sup>c</sup>	11.0 (6.5-12.0) <sup>A,b,C</sup>	88.9 (81.8-100.0)
FW	25.0 (21.0-31.5) <sup>a,B,C</sup>	67.1 (60.6-78.3) <sup>A,C</sup>	5.0 (3.0-7.0) <sup>A,B,C</sup>	87.5 (75.0-100.0)
	TOTAL PASSES OPPOSITION HALF (n)	SUCCESSFUL PASSES OPPOSITION HALF (%)	TOTAL PASSES DEFENSIVE THIRD (n)	SUCCESSFUL PASSES DEFENSIVE THIRD (%)
CD	13.2 (8.3-16.9) <sup>B,C,d,e</sup>	67.2 (54.5-83.1) <sup>c</sup>	10.0 (6.9-14.1) <sup>B,C,D,E</sup>	95.9 (92.0-100.0)
FB	22.9 (18.3-27.1) <sup>A</sup>	75.3 (60.8-80.4)	7.0(5.3-9.5) <sup>A,C,D,E</sup>	90.5 (85.0-100.0)
CM	27.0 (22.0-38.0) <sup>A,e</sup>	79.7 (75.8-84.7) <sup>a,e</sup>	7.0 (4.7-9.5) <sup>A,B,D,E</sup>	95.5 (90.5-100.0)
EM	23.0 (15.0-27.0) <sup>a</sup>	80.5 (75.0-83.6)	4.0 (2.5-4.8) <sup>A,B,C,E</sup>	100.0 (84.7-100.0)
FW	19.5 (15.5-25.0) <sup>a,c</sup>	66.7 (58.2-81.0) <sup>c</sup>	1.5 (0.5-2.0) <sup>A,B,C,D</sup>	100.0 (83.3-100.0)
	TOTAL PASSES MIDDLE THIRD (n)	SUCCESSFUL PASSES MIDDLE THIRD (%)	TOTAL PASSES FINAL THIRD (n)	SUCCESSFUL PASSES FINAL THIRD (%)
CD	21.0 (14.9-30.0) <sup>c,E</sup>	84.9 (79.3-90.4) <sup>c</sup>	4.5 (3.0-5.2) <sup>B,C,D,E</sup>	52.2 (37.3-67.3) <sup>c,D</sup>
FB	21.9 (18.0-23.8) <sup>c,E</sup>	82.7 (76.5-86.4) <sup>C</sup>	12.0 (9-14.9) <sup>A</sup>	66.5 (52.9-76.9)
CM	28.3 (23.0-38.5) <sup>a,b,D,E</sup>	90.3 (85.8-92.9) <sup>a,B,e</sup>	12.0 (7.5-19.3) <sup>A</sup>	72.0 (64.0-77.4) <sup>a</sup>
EM	17.0 (11.0-20.0) <sup>C</sup>	85.7 (81.2-91.8)	11.0 (7.5-17.0) <sup>A</sup>	77.3 (72.7-80.0) <sup>A,e</sup>
FW	9.0 (8.0-12.0) <sup>A,B,C</sup>	81.8 (75.0-88.9) <sup>c</sup>	12.5 (8.5-18.0) <sup>A</sup>	61.2 (50.0-73.3) <sup>d</sup>
	TOTAL SHORT PASSES (n)	SUCCESSFUL SHORT PASSES (%)	TOTAL LONG PASSES (n)	SUCCESSFUL LONG PASSES (%)
CD	28.7 (19-42.6) <sup>C</sup>	91.4 (86.9-94.4) <sup>b,d,E</sup>	6.3 (5.0-8.8) <sup>B,C,D,E</sup>	53.4 (38.7-62.5)

<b>FB</b>	34.8 (29.3-41.8) <sup>c,e</sup>	86.0 (82.6-88.9) <sup>a,c</sup>	5.0 (4.0-6.6) <sup>A,C,D,E</sup>	41.7 (28.9-58.0) <sup>c</sup>
<b>CM</b>	45.7 (35.2-56.5) <sup>A,b,D,E</sup>	86.3 (83.1-90.8) <sup>E</sup>	4.3 (3.0-6.4) <sup>A,B,d,E</sup>	62.0 (50.0-78.0) <sup>b</sup>
<b>EM</b>	30.0 (21.0-37.5) <sup>C</sup>	84.1 (80.9-87.1) <sup>a</sup>	2.0 (1.0-3.0) <sup>A,B,c,E</sup>	50.0 (10.0-66.7)
<b>FW</b>	23.0 (20.0-28.0) <sup>b,C</sup>	70.6 (66.1-84.2) <sup>A,b,C</sup>	1.0 (0.0-1.0) <sup>A,B,C,D</sup>	50.0 (0.0-91.7)
	<b>TOTAL CROSSES (n)</b>	<b>SUCCESSFUL CROSSES (%)</b>	<b>Pass Forward (n)</b>	<b>Pass Backward (n)</b>
<b>CD</b>	0.0 (0.0-0.0) <sup>B,c,D</sup>	25.0 (0.0-100.0)	16.0 (11.6-22.4) <sup>D,E</sup>	1.5 (0.9-2.8) <sup>B,C,D,E</sup>
<b>FB</b>	3.3 (2.0-4.0) <sup>A,C,E</sup>	83.3 (67.9-100.0)	17.4 (15.4-21.8) <sup>D,E</sup>	5.8 (3.3-9.5) <sup>A,d</sup>
<b>CM</b>	0.3 (0.0-1.2) <sup>a,B,d</sup>	100.0 (66.7-100.0)	16.0 (12.8-22.7) <sup>D,E</sup>	7.7 (4.9-9.8) <sup>A</sup>
<b>EM</b>	2.0 (1.0-3.0) <sup>A,c</sup>	70.8 (56.7-100.0)	8.0 (4.5-10.0) <sup>A,B,C</sup>	9.0 (7.0-11.5) <sup>A,b</sup>
<b>FW</b>	0.5 (0.0-1.0) <sup>B</sup>	100.0 (100.0-100.0)	6.0 (5.0-9.0) <sup>A,B,C</sup>	7.0 (4.0-9.0) <sup>A</sup>
	<b>Pass Left (n)</b>	<b>Pass Right (n)</b>		
<b>CD</b>	9.4 (5.0-13.1) <sup>c</sup>	9.3 (4.7-13.6) <sup>c</sup>		
<b>FB</b>	10.5 (1.6-16.0) <sup>c</sup>	3.8 (0.9-17.2) <sup>C</sup>		
<b>CM</b>	14.0 (9.9-18.0) <sup>a,b,d,E</sup>	15.0 (11.0-17.3) <sup>a,B,E</sup>		
<b>EM</b>	8.0 (3.0-11.0) <sup>c</sup>	11.0 (6.5-14.8)		
<b>FW</b>	5.0 (4.0-8.0) <sup>C</sup>	6.5 (5.0-7.0) <sup>C</sup>		

Data are Median (25-75 percentiles). CD, central defenders; FB, full-backs; CM, central midfielders; EM, external midfielders; FW, forwards. A,a denotes significant differences compared to CD; B,b denotes significant differences compared to FB; C,c denotes significant differences compared to CM; D,d denotes significant differences compared to EM; E,e denotes significant differences compared to FW; Capital letter denotes P<0.001 and small letter denotes P<0.05.

**Table 2 Defensive technical actions**

	<b>TOTAL TACKLES (n)</b>	<b>TACKLES WON (%)</b>	<b>TOTAL AERIAL DUELS (n)</b>	<b>AERIAL DUELS WON (%)</b>
<b>CD</b>	1.5 (0.7-2.0) <sup>b</sup>	87.5 (60.0-100.0)	3.0 (2.0-3.8)	57.1 (46.4-66.7) <sup>d</sup>
<b>FB</b>	2.3 (1.5-3.5) <sup>a,d,E</sup>	90.9 (73.2-100.0)	2.0 (1.0-3.0) <sup>E</sup>	53.3 (33.3-68.8) <sup>d</sup>
<b>CM</b>	2.3 (1.0-3.4) <sup>E</sup>	85.7 (75.0-100.0)	2.0 (0.7-3.2) <sup>E</sup>	50.0 (32.1-73.3)
<b>EM</b>	1.0 (0.3-2.0) <sup>b</sup>	100.0 (66.7-100.0)	2.0 (1.0-3.5) <sup>e</sup>	22.5 (0.0-35.0) <sup>a,b</sup>
<b>FW</b>	0.5 (0.0-1.0) <sup>B,C</sup>	100.0 (100.0-100.0)	5.0 (3.0-8.0) <sup>B,C,d</sup>	44.4 (15.8-57.7)
	<b>TOTAL GROUND DUELS (n)</b>	<b>GROUND DUELS WON (%)</b>	<b>Total Clearances (n)</b>	<b>Interceptions (n)</b>
<b>CD</b>	4.0 (2.9-5.1) <sup>B,C,D,E</sup>	59.5 (45.5-64.8) <sup>e</sup>	6.0 (5.0-7.6) <sup>b,C,D,E</sup>	1.5 (0.7-2.5) <sup>e</sup>
<b>FB</b>	8.2 (6.5-10.0) <sup>A</sup>	53.9 (48.5-63.7) <sup>e</sup>	3.0 (2.5-4.5) <sup>a,C,D,E</sup>	2.0 (1.0-2.4) <sup>d,E</sup>
<b>CM</b>	8.0 (6.7-11.0) <sup>A</sup>	50.0 (40.0-58.8)	1.0 (0.3-2.4) <sup>A,B</sup>	1.0 (1.0-2.3) <sup>e</sup>
<b>EM</b>	9.0 (7.0-11.7) <sup>A</sup>	50.0 (37.2-55.6)	0.0 (0.0-1.0) <sup>A,B</sup>	1.0 (0.5-1.5) <sup>b</sup>
<b>FW</b>	8.0 (6.0-10.5) <sup>A</sup>	42.9 (25.0-47.1) <sup>a,b</sup>	0.5 (0.0-1.0) <sup>A,B</sup>	0.5 (0.0-1.0) <sup>a,B,c</sup>
	<b>Recoveries (n)</b>	<b>Total Fouls Conceded (n)</b>		
<b>CD</b>	3.8 (3.0-5.0) <sup>C,d</sup>	0.8 (0.5-1.4) <sup>c,e</sup>		
<b>FB</b>	4.8 (4.0-6.4) <sup>c,e</sup>	1.3 (1.0-1.9)		
<b>CM</b>	7.0 (5.0-8.8) <sup>A,b,E</sup>	1.5 (1.0-2.0) <sup>a</sup>		
<b>EM</b>	6.0 (4.0-7.7) <sup>a,e</sup>	2.0 (0.5-2.0)		
<b>FW</b>	3.0 (1.0-4.0) <sup>b,C,d</sup>	2.0 (1.0-2.5) <sup>a</sup>		

Data are Median (25-75 percentiles). CD, central defenders; FB, full-backs; CM, central midfielders; EM, external midfielders; FW, forwards. A,a denotes significant differences compared to CD; B,b denotes significant differences compared to FB; C,c denotes significant differences compared to CM; D,d denotes significant differences compared to EM; E,e denotes significant differences compared to FW; Capital letter denotes P<0.001 and small letter denotes P<0.05.