

PERFORMANCE OF SOCCER PLAYERS OF DIFFERENT PLAYING POSITIONS AND NACIONALITIES IN A 30-METER SPRINT TEST

Daniel Barbosa Coelho*, Mario Lúcio Pereira Braga, Priscila Augusta Ferreira Campos, Luciano Antonacci Condessa, Lucas de Ávila Carvalho Fleury Mortimer, Danusa Dias Soares, Alexandre Paolucci, Emerson Silami Garcia

Laboratório de Fisiologia do Exercício/Universidade Federal de Minas Gerais
*Faculdade de Ciências da Saúde/Universidade FUMEC
Belo Horizonte, Minas Gerais, Brazil

The purpose of this study was to compare the performance of soccer players of different playing positions and different nationalities on a 30-meter sprint test. The players were instructed to run at full speed. Tests were performed on a Soccer field. The mean speed for 10 (V10), 10-30 (V20) and 30m (V30) were determined. The results of 75 Brazilian players of different positions were compared between themselves and 21 first division professional Brazilian players were compared with 18 J-League Japanese players. No difference was found between the performances of Brazilian players of different positions. The performance of Brazilian players in V20 and V30 (8.69 ± 0.64 and $7.68 \pm 0.28\text{m}\cdot\text{s}^{-1}$) was better than that of Japanese players (8.11 ± 0.26 and $7.42 \pm 0.22\text{m}\cdot\text{s}^{-1}$; $P < 0.05$). We concluded that playing position does not influence the performance of a 30-m sprint test. Moreover, Brazilian players are faster than Japanese players.

KEY WORDS: soccer, sprint, performance, playing position, nationality

INTRUDUCTION:

Evidences show that playing positions and competitive levels influence the physiological demands of soccer (Reilly *et al.* 2002). However, contradictions were found in the literature concerning the sprint performance (maximal velocity tests) of players of different playing positions (Santos, 1999; Todd *et al.* 2002; Wells & Reilly, 2000; Wisløff *et al.* 1998). Additionally, studies comparing the difference in sprint performance of players of different nationalities were not found in the literature. One of the purposes of the present study was to compare the performance of Brazilian players of different playing positions on a 30-meter sprint test. We also compared the performance of players from a first division Brazilian team with the performance of Japanese counterparts.

METHODS:

Sample: This study was approved by the Research Ethics Committee of the Federal University of Minas Gerais (ETIC 476/04). A total of 93 athletes participated in the study, being 18 from an adult Japanese (J-League) team and 75 athletes from two Brazilian teams (21 professional and 18 under-20 from a first division and 20 professional and 16 under-20 from a second division club). The 75 Brazilian athletes were grouped for the comparison between playing positions. For the assessment of differences between nationalities, the 18 Japanese players were compared with the 21 professional players from the first division Brazilian club. The physical characteristics of the players are presented in Tables 1 and 2.

Procedures: All players performed a 30-meter sprint test. Three photocells (precision $\pm 0.01\text{s}$) were positioned at the start (0-m), at 10-m and at 30-m. The photocells were connected to a microcomputer and time was measured using a timing software. The mean speed in the first 10m (V10), from 10m to 30m (V20) and from 0m to 30m (V30) was calculated. The players started the test from a standing position with the non-dominant foot placed 30cm behind the starting line. The athlete was instructed to run as fast as possible and not to stop until he passed the last photocell.

Statistical analysis: All statistical analyses were made using SPSS 10.0 for Windows. A independent Student t test was used to compare Brazilian and Japanese players. To compare the players of different positions an ANOVA *one way* with Tukey's *post hoc* test was used. The level of significance was set at .05.

Table 1. Characteristics of the Brazilian players by playing positions.

Position	Age (yrs)	Height (cm)	Body mass (kg)	%Body Fat
Forwards (n = 22)	25,33 ± 4,37	174,0 ± 4,98	70,92 ± 6,29	8,62 ± 1,60
Defenders (n = 14)	24,33 ± 4,18	184,73 ± 2,57	79,31 ± 4,04	9,91 ± 1,66
Full-backs (n = 11)	25,33 ± 0,58	172,0 ± 3,00	70,36 ± 3,75	8,15 ± 1,86
Mid-fielders (n = 28)	21,5 ± 2,07	175,2 ± 4,66	71,64 ± 4,44	8,42 ± 2,47

Table 2. Characteristics of the Brazilian and Japanese first division players.

Nationality	Age (yrs)	Height (cm)	Body mass (kg)	%Body Fat
Brazilian (n = 21)	23,76 ± 2,94	176,16 ± 6,49	72,95 ± 6,14	8,21 ± 2,61
Japanese (n = 18)	24,16 ± 3,04	176,5 ± 7,40	72,06 ± 5,57	8,96 ± 1,70

RESULTS:

The results for the performance in the 30m run test for the Brazilian players by playing position are presented in Table 3. No difference was found between the four playing positions evaluated.

Table 3. Performance of Brazilian players of different positions on the sprint test.

Position	V10 (m•s ⁻¹)	V20 (m•s ⁻¹)	V30 (m•s ⁻¹)
Forwards	6,01 ± 0,35	8,51 ± 0,45	7,47 ± 0,28
Defenders	6,00 ± 0,28	8,68 ± 0,60	7,52 ± 0,28
Full-backs	5,99 ± 0,15	8,65 ± 0,44	7,47 ± 0,27
Mid-fielders	6,18 ± 0,30	8,45 ± 0,33	7,57 ± 0,27

The results of the comparison between the Brazilian and Japanese players are displayed in Table 4. The Brazilian players had a superior performance in the V20 and V30 when compared to the Japanese players.

Table 4. Performance of the Brazilian and Japanese first division players.

Nationality	V10 (m•s ⁻¹)	V20 (m•s ⁻¹)	V30 (m•s ⁻¹)
Brazilian	6,23 ± 0,27	8,69 ± 0,64	7,68 ± 0,28
Japanese	6,38 ± 0,26	8,11 ± 0,26*	7,42 ± 0,22*

*Difference between the groups (P<0,05).

DISCUSSION AND CONCLUSIONS:

No differences were found between Brazilian players of different playing positions performing a 30m sprint test. These results are in agreement with Kollath and Quade (1993) who stated that the velocity development pattern was similar between players of different positions. The authors point out that the training methods were not specific for each playing position in soccer. Corroborating our findings, Neto et al. (2007) did not find differences between playing

positions in the physical profile, including the performance in a 30m sprint test, of Brazilian under-15 soccer players. However, the authors do not clarify what aspects may explain the reason for these results.

According to Bangsbo (1994) there are differences in the pattern of movement and in the characteristics of players from different playing positions and therefore it would be interesting to apply specific training methods for each position in the preparation of the athletes. However, at least in Brazil, there are no specific training methods for different playing positions. Usually, the players participate in all training activities in the same way, which could diminish the specificity and generalize the physical aspects of each playing position.

In relation to the differences between nationalities, the Brazilian soccer players attained higher velocities than the Japanese players in V20 and V30 stages of the 30-m sprint test ($P < 0.05$), demonstrating a better speed performance for the former. No other study was found in the literature comparing the sprint performance of professional soccer players from different countries. The difference found in our study may be explained by the cultural importance of soccer in Brazil. In the first division Brazilian club evaluated in this study, approximately 20-30 young boys (11-17 years old) participate in try-outs every week and, out of these, only one or two are selected by the club every month. Since coaches and trainers who evaluate these boys seek out for physical strength (specially speed) rather than only technical ability, the faster and stronger boys are most likely to be selected. Considering that a greater force development (and consequently speed) is associated with a higher number of type II muscle fibers (Aagaard e Andersen, 1998), the selection of faster boys might have been influenced by a genetic factor. Consequently, these players may have a better chance to develop this characteristic throughout their career in professional soccer. Considering that speed is a desired characteristic in soccer players, especially forwards and defense players, sprint tests should be conducted when selecting new players. In fact, tests should be conducted at least two to three times a year to evaluate the increase/changes in sprint speed, pointing out the players that may have a higher predisposition to develop a greater speed capacity.

We conclude that the performance in a 30m sprint test is not influenced by playing position. Additionally, the results of this study may help to explain, at least in part, the success achieved by individual Brazilian Soccer players in other countries and also the high competitive level of all Brazilian teams.

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