Performance Analysis in Football-Specific Tests by Para-Footballers With Cerebral Palsy: Implications for Evidence-Based Classification

Purpose: The objectives of this study were to analyze whether there were differences among para-footballers with different types and degrees of brain impairment (ie, bilateral spasticity, athetosis/ataxia, unilateral spasticity, minimum impairment criteria, or no impairment) in performing 3 football-specific tests requiring ball dribbling, to analyze whether there was an association among the results obtained in the 3 tests, and to determine whether the performance in the tests was associated with competitive level, level of training, or years' experience in para-footballers with cerebral palsy (CP). Methods: A total of 123 footballers took part in the study, 87 of whom were footballers with CP and 36 who were without impairment. Both groups were assessed in 3 footballspecific tests (Stop and Go, Turning and Dribbling, and the Illinois Agility Test). Results: The results showed that the footballers without impairment recorded a better performance in all tests (P< .01) in comparison with the CP players. No significant differences in test performance were observed among the CP players from different competitive levels. However, significant differences (P< .01) were observed between players with diplegia or athetosis/ataxia compared with players with hemiplegia or minimum impairment level. Performance in the tests did not correlate with years of football experience, weekly strength training sessions, or specific football training in the footballers with CP (P = .12–.95). Conclusions: These findings suggest the possible inclusion of these tests in the classification process for footballers with CP because they discriminate among functional classes and are resistant to training and competitive level.

Keywords: para-sport, brain injury, soccer, Paralympic, disability

Methods

Football (soccer) for people with cerebral palsy (CP) is a parasport regulated at the international level by the International Federation of Cerebral Palsy Football. It is a sport discipline that is practiced by footballers with central neurological injuries like CP, traumatic brain injury, or stroke.[1] In recent years, there has been a great expansion of CP football, due to a notable increase in the number of practitioners of this sport discipline and the number of events that are organized at the national, regional, and international level. This upswing has also been reflected in the scientific context, with publications on CP football increasing considerably in the last decade.[2–6]

One of the differences of CP football compared with conventional football is that the players are classified according to their impairments and how those impairments impact the different skills required for the game.[7,8] The functional classification system for CP football is based on the assessment of the type of impairment (ie, hypertonia, ataxia, or athetosis), the topography or body area affected, and the severity of the impairment, establishing a minimum impairment criterion to be eligible for this para-sport.[7] The final objective of the classification is to ensure fair competition. This is achieved by monitoring the impact that different types of impairment and their severity have on sport performance by grouping players with similar functional levels.[9]

According to Beckman and Tweedy,[10] the classification systems need tests that objective measure the athlete's impairment and performance to relate both dimensions, that is, to see how the impairment affects sport performance. The tests must also be valid, reliable, and training resistant so that no well-trained athlete is disadvantaged by the classification, that is, allocated to a sport class with a higher functionality.[10] However, in spite of the prolific research carried out on CP football in the last few years and the battery of valid and reliable tests generated for classification in this para-sport,[2,6,11–14] the classification process still leaves room for individual interpretation, especially in the assessment of football specific actions.[12,15]

Although recent scientific literature has seen an improvement in the evidence-based classification processes used to assess the impact of the eligible impairments on the skills required to play CP football,[4,6,8,12] no scientific article has analyzed whether para-footballers with CP and high level training or competitive performance obtain better results in football-specific tests. There is a need to study what specific tests are resistant to the level of training or competition so as to isolate the contribution of the eligible impairment. Thus, football specific tests requiring ball dribbling should be used for their association with a specific level of football/sport training and years of experience in the sport discipline. Taking into account that players must perform different actions with the ball that involve accelerations, decelerations, and changes of direction with different angulations for having better competence during match play, both in conventional[16,17] and CP football,[4,18] it may be relevant to analyze the performance of different tests, such as the Stop and Go (S&G) test, Turning and Dribbling (T&D) test, and Illinois Agility Test (IAT) since each of them has a different structure and nature. These tests involve football-specific actions with the ball, eg, accelerations, decelerations, and changes of direction, thus resembling many of the actions performed by football players in the match.

Therefore, the objectives of the present study were (1) to analyze if there were differences among para-footballers with different CP impairments (ie, bilateral spasticity, athetosis/ataxia, unilateral spasticity, minimum impairment criteria, or no impairment) in the performance of 3 football-specific tests with ball dribbling (S&G, T&D, and IAT); (2) to analyze if there is an association among the performance results obtained in the 3 tests; and (3) to determine if the performance in the tests is associated with the competitive level, level of training, or years of experience in CP football.

Methods

Participants One hundred and twenty-three footballers (23.53 [6.50] y, 70.09$-^2$ [8.37] kg, 175.91 [7.21] cm, 22.75 [2.51] kg·m , 10.40 [6.71] y of football experience) participated in the study. Eighty-seven CP para-footballers with an eligible impairment for CP football (25.1 [6.75] y, 69.14 [8.62] kg, 175.15 [7.53] cm, 22.73$-^2$ [2.79] kg·m) participated voluntarily during an international tournament (44.42% of the players in the competition). The other 36 players had no impairment (NCP; 19.51 ± 3.40 y, 72.35 ±$-^2$7.38 kg, 178.00 ± 5.38 cm, 22.81 ± 1.7 kg·m), competed regularly in third-division football teams, and had similar training volumes and ages to the para-footballers with CP. This group of NCP players was included in order to analyze whether the results obtained in the football-specific tests were different from the parafootballers with CP, since one of the objectives of the CP football classification is to determine the minimum impairment criteria to be eligible to compete in this team para-sport. The footballers with CP were divided into groups according to their eligible impairment and topology: bilateral spasticity (n = 7); athetosis/ataxia (n = 10); unilateral spasticity (n = 57); and players with minimum impairment of hypertonia, athetosis, or ataxia (n = 13). The inclusion criteria for participating in the study were to have a current federative license issued by the International Federation of Cerebral Palsy Football in the case of players with CP or from the Royal Spanish Football Federation in the case of the NCP players, and to not be suffering from injury at the time of the research. Before participating in the investigation, all participants gave their written informed consent after having received a detailed explanation of the risks and potential benefits of taking part in the study. The participants had the option to withdraw from the study at any moment. The research was approved by the ethics committee for research on human subjects at the Miguel Hernández University in Elche (reference DPS.RRV.01.14) and was developed according to the criteria established by the Declaration of Helsinki.

Design

The data were collected during an international competition to classify for the World Championships, where the players with CP carried out the S&G, T&D, and IAT tests. All the tests were performed in a single session in the order cited, leaving at otal of 5 minutes recovery between each test. All participants performed 2 trials of each test, taking the best recording for the data analysis. Before the tests, the participants carried out a standardized warm-up consisting of low-intensity running, jumping, and stretching exercises, and 2 accelerations over 15 m with and without changes of direction and with and without the ball. In order to have a control group, the data collection from the NCP group was carried out under similar conditions in their training facility and at the same moment in their competitive season. Finally, all participants answered a general questionnaire on the number of weekly training sessions and the number of specific strength and football weekly training sessions they performed, the highest level of competition in which they had participated (ie, national scope, national or regional competitions, world championship, or Paralympic Games), and their years of experience playing (CP) football.

Measures

S&G Test. The S&G test is used with footballers with CP and was selected from a battery of tests for evidence-based classification.[4] The players have to cover 30 m controlling the ball and make 2 stops of 2 seconds at the 10 m and 20 m marks (Figure 1A). Two sensing mats measuring 59 × 88 cm (CVP-2335; Tapeswitch, Farmingdale, NY) situated at 10 m and 20 m from the start were used for the test, as well as 4 photocells (Globus, Codogne, Italy) located at the beginning (start or 0 m), at 10 m, at 20 m, and at the finish (30 m). The players started at will and, controlling the ball with their feet, ran as fast as they could to the first sensing mat and came to a complete stop with both feet on the mat. After 2 seconds signaled by a preprogrammed beep, they continued to run to the second mat, to stop again, and after 2seconds,tocontinue toruncontrollingtheballtothe finishline.The participants had to control the ball on the mats until the beep

sounded (2 s). The time (in seconds) taken to cover the first 10 m (S&G_ 0–10 m), the second 10 m (S&G_10–20 m), the final 10 m (S&G_ 20–30 m), and the total time taken for the test (S&G_30 m) were recorded. Reina et al[4] showed good validity and reliability values for S&G with ball (ICC = .48, SEM = 9.8%) in CP footballers.

T&D Test. The T&D test is one that was designed ad hoc for this study based on a test which is regularly used in the classification process. Besides the test simplicity, the T&D test was designed according to the structure of the Yo-Yo test, which is widely used to assess the performance of repeated exercise by conventional football players and referees,[19] but using the same straight distance as the other 2 tests of this study and performing one turn toward the right and left sides. The players had to dribble the ball over 30 m, making two 180° changes of direction (Figure 1B). Two photocells were used (Globus), located at 0 m and at 10/30 m. The players started the test at will, running as fast as they could and dribbling the ball to the first cone located at the 10-m mark, then making the first 180° change of direction. The players continued until they made the second change of direction. Finally, they had to run in a straight line to the finish line. Recordings were made of the time (in seconds) taken to cover the first 10 m (T&D_10 m) and the total time taken for the test (T&D_30 m). This test, based on the data of the current study, revealed an acceptable level of relative reliability (ICC = .80; 95% confidence limits = .71–.87).

Illinois Agility Test. The IAT was performed using the same protocol described by Reina et al[12] for footballers with CP. Following the course shown in Figure 1C, the players had to cover the distance in the fastest time possible while controlling the ball with their feet. The time taken to perform the test was recorded with 2 photocells (Globus).[12] The time gates used to record the time were placed at the start and finish lines. Reina et al[4] showed good validity and reliability values of the IAT with the ball (ICC = .84, SEM = 6.3%) in CP footballers.

Statistical Analysis

The results are presented as mean (SD). The normality of the data was analyzed using the Kolmogorov–Smirnov test. All the analyzed variables showed a normal distribution. A 1-way analysis of variance was used with its corresponding Bonferroni post hoc test to assess the differences of means in the test performances according to the type of impairment (ie, bilateral spasticity, athetosis/ataxia, unilateral spasticity, minimum impairment, and control group), or according to the maximum competitive level attained by the player (National/Regional, World, or Paralympic Games). Where the differences of means were significant, effect sizes were calculated[19] to ascertain the magnitude of the differences among the groups. Effect sizes lower than 0.2, between 0.2 and 0.5, between 0.5 and 0.8, or greater than 0.8 were considered as trivial, small, moderate, or large, respectively.[19] The associations among different variables were calculated using Pearson correlation (r) and were interpreted according to the following scale: <0.1, trivial; from 0.1 to 0.3, small; from 0.3 to 0.5, moderate; from 0.5 to 0.7, large; from 0.7 to 0.9, very large; and >0.9 almost perfect.[20, 21] Data analysis was performed with the Statistical Package for Social the group of players with bilateral spasticity and the group with Science (version 23.0; SPSS Inc, Chicago, IL).

Results

The results obtained in the tests according to the type and degree of test according to the highest competitive level at which the players impairment are presented in Table 1. They show that the NCP group with CP had participated (national/regional, world championship, performed significantly better (P< .01) in all tests than the group or Paralympic Games) and the NCP players(national). No significant of players with bilateral spasticity, athetosis/ataxia, and unilateral differences were observed in the performance of any of the tests spasticity. However, no significant differences (P> .05) were found among the players with CP of different

competitive levels. The NCP in any of the tests among the NCP and the minimum impairment players obtained significantly better results (P< .01) than the players group. Similarly, no significant differences were observed between with CP from the different competitive levels in the 3 tests.

With respect to the associations among the results obtained in the different tests by the players with CP, a significant association was observed between S&G and the times of the T&G (P< .01; r = .39–.69, moderate to large). Significant associations were also found among the IAT and the S&G (P< .01; r = .34–.55, moderate to large) and T&D (P< .01; r = .41–.70, moderate to large).

The players with CP had football practice experience of 10.6 (7.3) years and performed an average of 3.3 (1.3) football training sessions per week and 3.0 (1.5) strength training sessions per week. No significant associations (P> .05) were observed between the performance in the tests and the years of football experience, the weekly strength training sessions, or the weekly football training sessions in the players with CP. However, the NCP group of players, who had football experience of 10.0 (5.2) years, performed an average of 3.4 (0.5) football training sessions per week and 1.7 (0.9) strength training sessions per week, showed a significant association between the years of football experience and the results of the T&D_30 m (P< .01; r = −.33, moderate) or the S&G_10 m (P< .01; r = −.57, large), as well as the number of weekly sessions of strength training and the S&G_10 m (P = .04; r = −.39, moderate) and the S&G_30 m (P = .04; r = −.37, moderate).

Discussion

The main objective of this study was to determine if the type or degree of eligible impairment in CP footballers directly influenced their performance of 3 football-specific tests with the ball (S&G, T&G, and IAT). It was also aimed to ascertain whether there was a relationship among the different tests used and to analyze if experience, level of strength, and sports-specific training or competitive level were determinants of the test performance in parafootballers with CP. The results obtained show that the specific football tests with a ball used in this study discriminate between football players with CP with different impairments and are resistant to the competitive level, training, or sport experience. These results can contribute to a better understanding of the classification process in CP football. The present study, also, may contribute to establishing a more equitable classification system according to the different types of eligible impairment and, in an innovative manner, ascertain if the specific tests with the ball used in this study are resistant or not to the players' levels of training and competition.

The findings of the present study show that the NCP players obtained better results in their performance in all tests in comparison with the players with different types of impairment (ie, bilateral spasticity, athetosis/ataxia, and unilateral spasticity). However, no significant differences were found in the test performance between the NCP group and the group of players with minimum impairment. These results partially coincide with those of Reina et al.[4] These authors showed that, despite the differences between players with minimum impairment and those with no disability (ie, an eligible brain impairment), performance differences were more evident in the tests carried out with the ball. However, not all the tests with the ball involving changes of direction were effective in discriminating between the athletes, as significant differences were only found in the S&G test.[4] According to the results obtained by Reina et al[12] and those of the present study, more studies on this topic seem to be needed in order to reach a deeper understanding of which tests with the ball discriminate more effectively between NCP players and those with minimum impairment. In addition, although a lower performance was found in the specific tests with the ball in the players with bilateral spasticity or athetosis/ataxia in comparison with players with unilateral spasticity or minimum impairment, no significant differences were revealed between players with bilateral spasticity and those with athetosis/ataxia. These

204 results reaffirm the previously stated idea that the players with bilateral spasticity or athetosis/ataxia represent
205 the "lower sport classes for the game." [22] The players with bilateral spasticity present with grades 2 to 3 (of a
206 maximum of grade 4) spasticity in both legs,[7,23] limiting their capacity to move around and to control the ball
207 due to the internal rotation of their knees and inversion of their feet. This abnormal muscle tone often causes
208 impairment in the voluntary and passive movements of the legs, which may result in rotational ankle
209 abnormalities followed by poor pelvic alignment (ie, crouch gait).[24] These compromises may cause difficulty
210 and reduced steps for athletes to move around, consequently increasing the time it takes to make a change of
211 direction.[18] On the other hand, players with athetosis/ataxia present general limitations in the control of
212 voluntary movements, impacting on their capacity to control the ball when they need to change direction or
213 accelerate/ decelerate, actions which feature strongly in the tests used for the present study. These functional
214 limitations could decrease performance in the tests with the ball that were analyzed.

215 No significant differences were found between the players with unilateral spasticity and those with minimum
216 impairment. The players with unilateral spasticity are the most frequent type of players encountered in this
217 para-sport, and also the most common profile among individuals with CP.[25] This factor of not presenting
218 restrictions for being selected as part of a team, combined with the fact that they have no limitations on one
219 side of their bodies, makes it possible for these players to develop great skill in controlling the ball with the
220 unaffected leg. Bearing in mind that there were no restrictions on the use of the lower limbs for controlling
221 the ball in the tests analyzed, their performance could be similar to those who present minimum impairment.
222 As not all the tests with the ball revealed differences among the profiles analyzed, it may be necessary for the
223 classification processes to complement these tests with the ball with other assessment tests without the ball,
224 for instance with tests of sprints, changes of direction, or vertical and horizontal jumps which have already
225 been described as discriminators among players of different sport classes in this team parasport.[4,5] Similarly,
226 future research would explore whether the application of some types of restriction/limitation in testing skills
227 with the ball could allow discrimination between players with unilateral spasticity and those with minimum
228 eligible impairment. In this study, the use of the dominant and nondominant legs was chosen on an individual
229 basis to perform the task in order to achieve the best performance on the test. However, these results must be
230 taken with caution, since the varying sample sizes in the different CP profiles may have influenced the results
231 obtained and the fact that the potential relationships between the impairments of hypertonia, ataxia, or
232 athetosis and performance might be impairmentspecific.[26]

233 In addition to the differences in generic and specific tests among players with different impairments, the model
234 proposed by Tweedy and Vanlandewijck[9] defends the need to implement tests in the classification process that
235 are training resistant, so as not to penalize the well-trained players. To date, no study has been found in the
236 scientific literature that has investigated this aspect in CP football players. The results of the present study
237 showed that there were no significant differences in the performance of the tests with the ball among the
238 footballers with CP from different competitive categories (ie, national/regional, world championship, and
239 Paralympic Games). Moreover, the findings did not reveal any significant associations between the
240 performance in the tests and the variables of years of football experience, or weekly strength or specific
241 football training sessions in the footballers with CP. In contrast, significant associations were found between
242 the performance in the S&G and T&D tests with the years of football experience and the weekly sessions of
243 strength training in the NCP group of footballers. These results demonstrate that the tests with the ball may
244 be resistant to the training or the competitive level of the para-footballers with CP, in contrast to what occurs
245 with NCP players. One of the possible explanations for this could be that the players do not usually practice
246 this training tasks (ie, tests with balls) in their daily training sessions. In other words, tests involving sprints
247 and/or changes of direction are usually used to monitor physical conditioning, while training tasks with balls
248 are practiced by small-sided game tasks. Another of the possible aspects which could have influenced the
249 results is that all the players with CP participating in this study were international players that had been chosen
250 by their respective countries for the international competition where the data collection process was carried

out. According to the model by Tweedy and Vanlandewijck,[9] training-resistant tests are needed. Thus, it could be interesting to include the tests with the ball used in the present study in the classification process and other similar ones that are sufficiently innovative, either because they are not commonly used in training[9] or because they are created ad hoc for the classification process (since learning from execution of the test could influence the results).

This study is not exempt from limitations, so the results obtained must be taken with caution. Although the sample size used represented a very large group of elite football players with CP, it would be interesting to analyze whether these tests could also be used in players of a lower level (national or provincial). In future research, it may be interesting to include players with little experience to know the effect of the experience or competitive level on the test results. Moreover, this study only measured the players' performance in 3 specific tests with the ball and it would be interesting to know if the results are similar using another type of tests. Finally, in the present study, a control group was selected (ie, NPC players), with a similar level of training to the players with CP. However, the average age of the NPC group was somewhat different from that of the CP group, so future research should consider a more appropriate selection of the NPC group.

Conclusions

The results obtained in the present study show that the specific tests with the ball can be used to discriminate among footballers with CP with different types of impairment, especially between the players with bilateral spasticity or athetosis/ataxia compared with players with unilateral spasticity or minimum impairment. Therefore, these football-specific tests could help in the classification decision making process. However, these tests do not seem to be effective for discriminating players with bilateral spasticity from players with athetosis/ataxia or between players with unilateral spasticity and those with minimum impairment. Moreover, the tests used in this study seem to be resistant to training and competitive level, so they could be used as a tool in the classification process of players with CP.

Practical Applications

It might be interesting, in addition to the specific tests with the ball, to use other tests in the classification process that make it possible to analyze the differences between players with these impairments. In this respect, the classifiers and conditioning specialists could have an important role, since the sprints, changes of direction, or vertical and horizontal jump tests have already been described as discriminators among players of different sport classes[4,5] due to their clear advantage for more sporting success during football practice.

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Figure 1. Descriptions of (A) the Stop and Go test with the ball, (B) the Turning and Dribbling test with the ball, and (C) the Illinois Agility Test with the ball.

Table 1. Results Obtained by the Players Participating in the Study in the Specific Tests With the Ball According to Type of Impairment

Variable	BiSp	Ath/Atx	UnSp	MI	NCP	Comparison among groups
S&G S&G_0–10 m, s	2.55 (0.31)	2.31 (0.21)	2.18 (0.18)	1.93 (0.13)	1.96 (0.15)	BiSp–UnSp ES = −1.5* BiSp–MI ES = −2.8* BiSp–NCP ES = −2.6* Ath/Atx–MI ES = −2.2* Ath/Atx–NCP ES = −1.9* UnSp–MI ES = −1.6* UnSp–NCP ES = −1.3*
S&G_10–20 m, s	2.95 (0.32)	2.80 (0.29)	2.61 (0.27)	2.30 (0.19)	2.10 (0.13)	BiSp–MI ES = −2.5* BiSp–NCP ES = −3.8* Ath/Atx–MI ES = −2.1* Ath/Atx–NCP ES = −3.3* UnSp–MI ES = −1.3* UnSp–NCP ES = −2.6*
S&G_20–30 m, s	2.80 (0.14)	2.80 (0.39)	2.66 (0.39)	2.39 (0.26)	2.02 (0.17)	BiSp–NCP ES = −5.0* Ath/Atx–NCP ES = −2.8* UnSp–NCP ES = −2.3*
S&G_30 m, s	8.00 (0.82)	7.92 (0.87)	7.44 (0.77)	6.63 (0.53)	6.08 (0.35)	BiSp–MI ES = −2.0* BiSp–NCP ES = −3.3* Ath/Atx–MI ES = −1.8* Ath/Atx–NCP ES = −3.0* UnSp–MI ES = −1.2* UnSp–NCP ES = −2.4*
T&D T&D_10 m, s	2.95 (0.26)	3.09 (0.42)	2.73 (0.48)	2.47 (0.26)	2.21 (0.20)	BiSp–MI ES = −1.8* BiSp–NCP ES = −3.2* Ath/Atx–MI ES = −1.8* Ath/Atx–NCP ES = −2.8* UnSp–NCP ES = −1.5*
T&D_30 m, s	14.76 (1.92)	14.39 (1.70)	13.02(1.84)	12.24 (1.72)	10.97 (0.91)	BiSp–MI ES = −1.4* BiSp–NCP ES = −2.7* Ath/Atx–MI ES = −1.3* Ath/Atx–NCP ES = −2.6* UnSp–NCP ES = −1.5 *
IAT, s	29.93 (4.11)	27.46 (4.53)	25.87 (3.33)	23.22 (2.57)	21.22 (0.88)	BiSp–UnSp ES = −1.1* BiSp–MI ES = −2.0* BiSp–NCP ES = −3.5* Ath/Atx–MI ES = −1.2* Ath/Atx–NCP ES = −2.3* UnSp–MI ES = −0.9* UnSp–NCP ES = −2.2*

Abbreviations: Ath/Atx, athetosis/ataxia; BiSp, bilateral spasticity; ES, effect size; IAT, Illinois Agility Test with the ball; MI, minimum impairment; NCP, group of players with no cerebral palsy; S&G_0–10 m, time at 10 m in the Stop and Go Test; S&G_10–20 m, time for the 10- to 20-m section in the Stop and Go Test; S&G_20–30 m, time for the 20- to 30-m section in the Stop and Go Test; S&G_30 m, time at 30 m in the Stop and Go Test; T&D_10 m, time at 10 m in the Turning and Dribbling Test; T&D_30 m, time at 30 m in the Turning and Dribbling Test; UnSp, unilateral spasticity.

*$P = .000–.008$: significant differences between groups.

Table 2. Results of the 3 Tests With the Ball According to the Highest Competitive Category Attained (Reg/Nat, WCh, and PG by the Players With CP and the NCP)

Variable	Reg/Nat	WCh	PG	NCP	Comparison among groups
S&G					
S&G_0–10 m, s	2.08 (0.14)	2.25 (0.24)	2.10 (0.21)	1.96 (0.15)	WCh–NCP ES = −1.5**
S&G_10–20 m, s	2.50 (0.25)	2.70 (0.29)	2.47 (0.30)	2.10 (0.13)	Reg/Nat–NCP ES = −2.1** WCh–NCP ES = −2.9** PG–NCP ES = −1.7**
S&G_20–30 m, s	2.58 (0.34)	2.74 (0.35)	2.47 (0.44)	2.03 (0.17)	Reg/Nat–NCP ES = −2.2** WCh–NCP ES = −2.7* PG–NCP ES = −1.4**
S&G_30 m, s	7.16 (0.67)	7.66 (0.79)	7.03 (0.89)	6.10 (0.35)	Reg/Nat–NCP ES = −2.1** WCh–NCP ES = −2.7** PG–NCP ES = −1.5**
T&D T&D_10					
m, s	2.42 (0.26)	2.85 (0.46)	2.61 (0.46)	2.21 (0.21)	WCh–NCP ES = −1.9** PG–NCP ES = −1.2**
T&D_30 m, s	11.56 (0.72)	13.57 (1.89)	12.85 (2.03)	10.97 (0.91)	WCh–NCP ES = −1.9** PG–NCP ES = −1.3**
IAT, s	24.10 (1.63)	26.43 (3.96)	25.53 (3.68)	21.22 (0.88)	WCh–NCP ES = −2.2** PG–NCP ES = −1.9**

Abbreviations: CP, cerebral palsy; ES, effect size; IAT, Illinois Agility Test with the ball; NCP, players with no cerebral palsy; PG, Paralympic Games; Reg/Nat, regional/national; S&G_0–10 m, time at 10 m in the Stop and Go Test; S&G_10–20 m, time for the 10- to 20-m segment in the Stop and Go Test; S&G_20–30 m, time in the 20- to 30-m segment in the Stop and Go Test; S&G_30 m, time at 30 m in the Stop and Go Test; T&D_10 m, time at 10 m in the Turning and Dribbling Test; T&D_30 m, time at   30 m in the Turning and Dribbling Test; WCh, World Championship.

*P = .014 or **P = .000–.006: significant differences among groups.