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AACPDM Adapted Sports/Rec Committee
Journal Article Digest Sub-Committee

Article Title
Contextual factors and match-physical performance of international-level footballers with cerebral palsy

Article Citation
Henríquez, M., Reina, R., Castillo, D., Iturricastillo, A., and Yanci, J (2023). Contextual factors and match-physical performance of international-level footballers with cerebral palsy, Science and Medicine in Football, DOI: 10.1080/24733938.2023.2206384

Adaptive Sport/Recreation Categories
- International football
- Physical performance
- Contextual factors
- Cerebral Palsy

Study Type: Cross-sectional observational study with between-subject comparisons

Summary
There is increasing global interest in the performance of athletes with cerebral palsy (CP) playing international football. Advancing research knowledge on technology and relevant metrics can aid the footballers and coaches in their classification, training, competition, technical and tactical factors during practice and match play. Advances in Global Positioning Systems (GPS) technology can be used to provide feedback including variations in time motion in relation to the following contextual factors: team category ranking, quality level of the opposition, and match outcome. Eighty-two male professional outfield footballers with CP from the top 1 to 8 internationally ranked CP teams (n = 26) and bottom 9 to 24 ranked CP teams (n = 56) participated. Each player wore a GPS device (using a purpose-built harness) during a total of 48 competition games. GPS devices measured: total distance, distance covered at different velocities (low walking through to sprinting) and number of moderate or high accelerations/decelerations. Results found differences between footballers in the top and bottom ranked teams for match-play physical responses and match outcomes. Players from top-ranked teams: covered more distance at low intensities, had greater sprint demands in losing matches, and higher sprint distance, moderate and high accelerations/decelerations when playing teams of similar level. Players from bottom-ranked teams: covered greater total distance, ran at higher medium to sprint intensities, and increased number of accelerations and decelerations when playing similar teams. In matches with a losing result, bottom ranked teams recorded increased moderate running, sprinting, and moderate-to-high deceleration. Coaches and classifiers can use this information to help with training, competition preparation and post-match recovery for international footballers with CP.

Article Strengths
- Real time match- play data collection
- International data from best world CP footballers
- Use of GPS technology applied to parasport
- Measured walking through to sprinting
- World wide data collection from multiple tournaments

Article Weaknesses

- Measured outfielder players only, goalkeepers excluded
- Limited to high-level athletes
- Other physiological parameters were not measured jointly e.g., heart rate
- Uneven data collection due to win:loss ratio of games
- No comments regarding regional differences
- No female footballers included
- Many other personal, contextual and environmental factors need to be considered e.g., temperature, number of games in tournament, game number measured, injuries, experience of the player, role of the player on the team

Take Home Messages

- Contextual factors of team ranking, quality of opposition and match outcome can influence the physical performance of international footballers with CP
- Players, coaches and classifiers should be aware of these differences and plan training, game tactics and recovery accordingly

Impacts on Clinical Practice

- International footballers with CP work at higher velocities when losing therefore post-match recovery may need more attention
- Football training and tournament preparation should consider the intensity of effort that is required in winning and losing games and be replicated to best prepare athletes for competition
- Players moving from bottom-ranked teams to higher ranked teams should have modified training to prepare for the greater demands
- Classifiers observing and assessing footballers during competition should consider opposition quality and match outcome as well as footballers activity limitations
- GPS technology can be helpful in assessing physical performance