Sports Analytics in NCAA Division III Men's Soccer: A Case of Practical Application of GPS Metrics

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ABSTRACT

Sports performance analysis has become an essential tool for coaches as it provides evidence for more educated decisions. However, objective measurement is essential for that process. Recently, GPS metrics have become very popular in soccer as they provide quantifiable data on identified key performance indicators (KPIs). Making inferences from raw data is a common challenge for practitioners. **PURPOSE**: To analyze and interpret the game data from 2020-21 season to answer the head coach's questions of a) What is the profile per position (Center Back, Full Back, Deep Midfielder, Winger, Attacking Midfielder, and Striker) based on seven specific KPIs identified by the coach (GPS Training Load, Total Distance, Sprint Total Distance, Sprint Count, Sprint Average Speed, Explosive Effort Count, and Top Speed)? and b) Are there significant differences in those profiles between losses and wins? **METHODS**: All 29 players agreed to participate. Data were collected using the Titan 1+ GPS sensor. After differentiating practice from game data (n = 16), we created profiles per position based on the aforementioned KPIs. We, then, explored differences between the eight wins and the seven losses (the one tied game was excluded from the second part of the analysis). We converted all raw scores to Z scores, so the scale would be the same across all variables and easier to present to the coaching staff. Therefore, all differences are in SD units (i.e., effect size). **RESULTS**: Due to space limitations, we are presenting results for the position of the Deep Midfielder as an example. All games: GPS Training Load = 0.02; Total Distance = 0.31; Sprint Total Distance = -0.29; Sprint Count = -0.32; Sprint Average Speed = -0.38; Explosive Effort Count = -0.32; and Top Speed = -0.40. Wins: GPS Training Load = 0.23; Total Distance = 0.80; Sprint Total Distance = -0.37; Sprint Count = -0.41; Sprint Average Speed = 0.00; Explosive Effort Count = -0.40; and Top Speed = -0.08. Losses: GPS Training Load = -0.01; Total Distance = -0.02; Sprint Total Distance = -0.06; Sprint Count = -0.08; Sprint Average Speed = -0.40; Explosive Effort Count = -0.08; and Top Speed = -0.38. **CONCLUSION**: The coaching staff will use these findings to adjust practices per position for the 2022-23 season. According to the ACSM worldwide survey, wearable technology is the number one fitness trend for 2022. Division III (DIII) schools are the biggest participant in the NCAA. In terms of the number of student-athletes, soccer is the second most popular sport in the NCAA. This case study could have numerous practical implications as it demonstrates how sports data analysts and sports practitioners can collaborate in sports performance analysis.