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Elite Football of 2030 will not be the same as that of 2020: What has evolved and what needs to evolve?

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LETTER TO THE EDITOR

Elite football of 2030 will not be the same as that of 2020: What has evolved and what needs to evolve?

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Sport scientists must have an intimate understanding of the determinants of performance, the complexities of the adaptive response, the nature of the training stimulus and its assessment.[1]

— Prof. Tom Reilly

We read with interest the recent editorial by Nassis et al[2] on future demands of elite football. Here we add to this evolving conversation by providing some practical considerations around the future physical preparation of elite players for high-intensity locomotor demands not explicitly addressed in the editorial. We also feel that women's football should feature in this discussion, given its rapidly growing profile and professionalism[3], while evidence from the 2015 and 2019 women's World Cups illustrates that high-intensity running demands could be increasing at a greater rate than men's.[3]

Whilst we agree with Nassis et al[2] that the future game will be played at higher speeds, it is important to note that the English Premier League study[4] used by the authors[2] to forecast increases in high-intensity running used absolute high-speed running and sprinting zones. Importantly, for the purposes of accurately informing the preparation of elite players, these arbitrary high-intensity running thresholds do not capture accelerations or decelerations, reflect the relative proportion of an individual's anaerobic speed reserve (ASR), nor consider individual player movement, tactical and technical demands that are important for position specific training[5] and rehabilitation.[6]

We suggest that tactical evolutions of the future game, predicated on models of high-intensity pressing, counter pressing, and counterattacking, will result in greater exposure to intense, short accelerations and decelerations, interspersed between more high-speed running moments.[6] Accordingly, the creation of high-intensity locomotor profiles may be especially insightful for individualizing load demands and accurately informing training prescriptions (Figure 1). Such a profile could include maximal: (1) acceleration, (2) deceleration (3) maximal aerobic speed (MAS) and (4) maximal sprinting speed (MSS) metrics — with the latter two components enabling evaluation of anaerobic speed reserve. Clearly, although beyond the scope of this letter, future players will also require concurrent improvements in high-speed decision-making skills.

< INSERT FIGURE 1 HERE >

We see the locomotor profile having the biggest impact on physical preparation and performance through:

1. **Raising the 'ceiling':** Advanced field-based profiling will identify individual specific training needs enabling the 'ceiling' to be raised in each high-intensity locomotor skill through individualized training. Raising the 'ceiling' will improve player capacity to repeat and recover from dense high-intensity running loads.
2. **Braking performance capabilities:** The development and refinement of deceleration metrics, and the design of corresponding training interventions, will enhance braking performance capabilities, facilitating game-specific speed abilities and reduced pre-disposition to fatigue and injury.
3. **Precision monitoring:** Small embedded micro-technologies will provide advanced, *in-situ*, precise physiological and mechanical insights into high-intensity locomotor performances. Such data, when analysed using evolving machine learning algorithms, should provide information to more accurately inform coaching, sport science and medicine practitioner's decision-making processes.
4. **Precision loading:** New technologies will enable precise loading of specific force-velocity components required for each high-intensity locomotor skill. For example, portable motorised electronic systems can be used to create assisted and resisted player specific acceleration, deceleration and MSS training prescriptions.

In summary, the future game will demand an increasing priority on 'individualization'. We offer the locomotor profile as a key tool that may help us navigate the complexity of future game demands.

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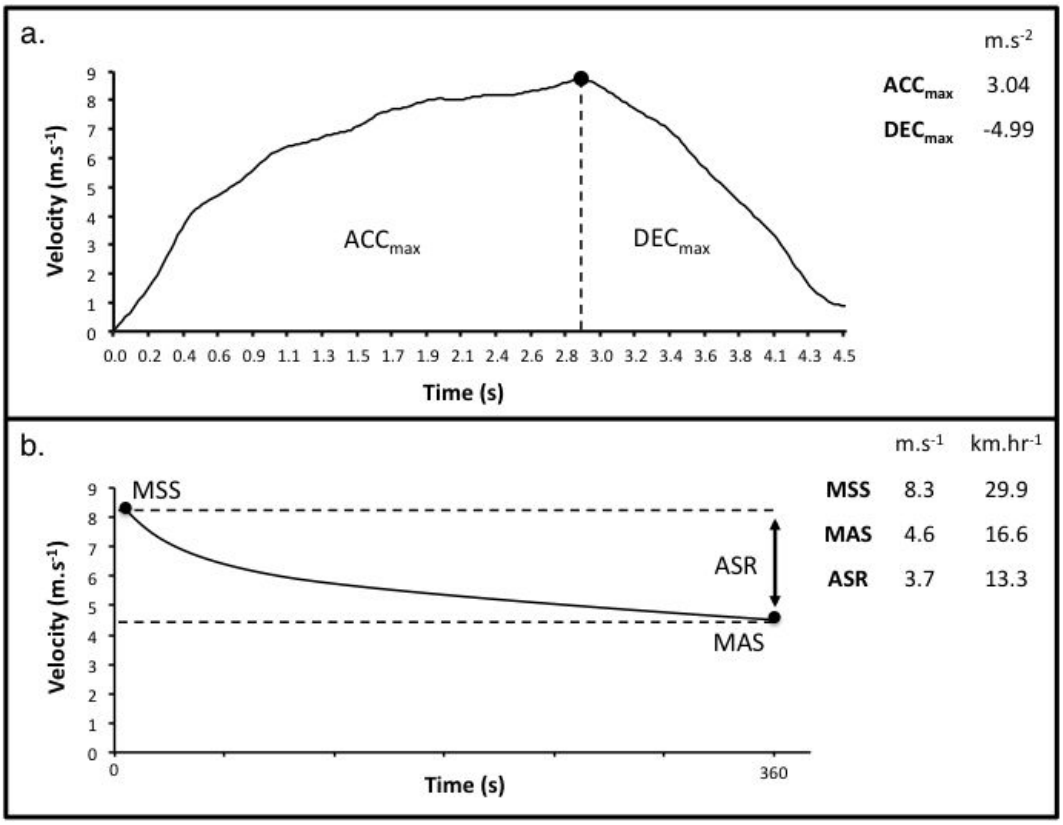

Figure 1. Example of individual player high-intensity locomotor profile (a) maximal acceleration (ACC_{max}) and deceleration (DEC_{max}) and (b) anaerobic speed reserve (ASR) calculated as the speed range between a players maximal sprinting speed (MSS) and maximal aerobic speed (MAS).