

Change in Soccer Substitutions Rule due to COVID-19: Why only Five Substitutions?

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Abstract

Each sport has its specific rules, which determine what is allowed (or not) impacting directly on the sport demands. Studies involving physiological and time-motion measurements have shown that soccer is a highly demanding sport. The new coronavirus disease 2019 (COVID-19) has been a world health crisis. Soccer seasons were interrupted worldwide to avoid spreading the virus. Leagues resumed the season (no fans at the arenas) after several weeks of interruption, causing overlay of schedule. This overlay (e.g., games every Sunday and Wednesday) will cause accumulated fatigue on players, raising the risk of injuries. Considering this condensed calendar, the Fédération Internationale de Football Association (FIFA) has changed (temporarily) up to five substitutions during elite games (instead of three as the regular rule allows). Considering the already published scientific evidence, clearly, the change in the soccer substitution rule due to COVID-19 is insufficient. Implementing unlimited substitutions may benefit soccer players' health, coaches' jobs, more entertainment for fans and sponsors (e.g., keeping intensity during all game, including on the second half) and eventually prolonging the useful life of the players. A real game-changer!

Keywords: coronavirus; sports; management; football; rules; games

Introduction

Previous investigations reported that soccer has a high injury rate and injury percentage (Elias, 2001; Wong and Hong, 2005), and more injuries have been observed in soccer than in several other sports (Yde and Nielsen, 1990; Wong and Hong, 2005). Interestingly, the injury rate is markedly higher (~10 times) during the game than during the training sessions (López-Valenciano et al., 2020), suggesting that the focus for injury prevention might be match management. Each sport has its specific rules, which determine what is allowed or not (Vamplew, 2007). For instance, number of players on each team (and substitutions), the measurements of the field/court, etc. From a scientific mindset, we may acknowledge that the rules of each sport are the cause (independent variable) and the “way to play” is the effect (dependent variable). For example, if soccer rules changed and allowed all soccer players to take the ball with the hands inside the defensive penalty area (like a goalkeeper), what would happen in preparation for games and within the games themselves? Analyzing the rules may be fundamental to making changes to the rules, aiming to enhance a sport (Vamplew, 2007). For example, updating the rules can make the sport safer (e.g., shin guards), healthier (e.g., timeouts for hydration), fairer (e.g., video assistant referee), or more entertaining (i.e., advantageous to sponsors and fans) to compete with other sports, including e-sports that have grown rapidly (Jenny et al., 2018).

The new coronavirus disease 2019 (COVID-19) has been a world health crisis. Since soccer is the most popular sport in the world, seasons were interrupted worldwide to avoid spreading the virus among players, staff, press, fans and people involved in the games. Leagues resumed the season (no fans at the arenas) after several weeks of interruption, causing overlay of schedule. This overlay will cause a phenomenon called congested schedules (e.g., six games during 21 days), eventually developing accumulated fatigue on players (Silva et al., 2018; Gimenes et al., 2019), and possibly raising the risk of injuries (Ekstrand et al., 2004; Bengtsson et al., 2013; Dellal et al., 2015). In order to minimize the overload of games and potential physical issues, FIFA has authorized the increment (temporarily) up to five substitutions each team per game (instead of three). Compared with other similar invasive team sports (e.g., basketball, futsal), regular soccer rules allow a very limited possibility for substitutions (i.e., up to three vs. unlimited, e.g., handball). Remarkably, there is limited research and scientific debate about ‘the must’ changing in substitutions rules in soccer. Therefore, here we present possibilities to enhance soccer overall, and discuss the substitutions change on substitutions rules due to COVID-19.

Soccer demands, fatigue and injury risk

Although sports injuries are multifactorial, accumulated fatigue has an important role (Ekstrand et al., 2004). A single soccer match causes fatigue, which is connected with significant match-induced inflammatory responses and muscle damage (Silva et al., 2018). Indeed, Souglis et al. (Souglis et al., 2015) found larger inflammatory

and muscle damage markers after soccer match than other team sports matches, therefore concluding that soccer is 'the most demanding'. Additionally, soccer has higher total physical demands measured by time-motion studies (e.g., running distances in high-intensity running and sprinting) compared with other team sports (Taylor et al., 2017).

In addition to all facts mentioned, an evolution in soccer demands (i.e., physical and technical) has been revealed over time (Barnes et al., 2014). Research following seven soccer seasons found a minor increment of ~2% in total distance covered/match, but high-intensity activities increased impressively (e.g., > ~30% sprint distance, sprints), as well as technical variables such as passes and successful passes (Barnes et al., 2014). Because high-speed running and injuries are associated (Gabbett, 2016; Buchheit et al., 2019), such physical and technical evolution is a concern.

Additionally, modern soccer has several games within 72-96 h in-between games, generating congested schedules, which is an important issue for clubs and medical staff (Ekstrand et al., 2004; Dellal et al., 2015). For instance, higher muscle injury rates were found in matches with poor recovery (\leq four days) vs. better recovery periods (\geq six days) (Bengtsson et al., 2013), generating high financial costs (Ekstrand, 2013). Eventually, soccer overload during the player career is linked with a significant loss of time from involvement, early retirement (Knapp et al., 1998), premature osteoarthritis, and unfortunate quality of life following retirement (Roos, 1998; Arliani et al., 2014).

Although several strategies (i.e., training and recovery) have been studied and applied to address the issues mentioned (Nédélec et al., 2013; Gabbett, 2016; Pavin et al., 2019; Rey et al., 2019), in our opinion, allowing many substitutions (e.g., unlimited) in soccer would be an excellent strategy.

Rules, physical demands and substitutions

Normally, soccer coaches can make three substitutions. Due to the COVID-19 changes in the calendar season, up to five substitutions were allowed. During international and official matches, soccer coaches have 12 available substitute players. Therefore, the regular law of the game allows 'only' ~13% (3 out of 23) of substitutions. This is too few compared, for example, with other popular invasive team sports (e.g., futsal and handball), which can replace 100%, and substitute players may return to play. The increase on soccer substitutions due to the COVID-19 (five players) increases the percentage to ~21.7%, but it is still small considering the high physical demands. Additionally, the substituted player cannot return to the very game in soccer, while other team sports yes. The very restricted number of possible substitutions may make the sport less healthy. A study comparing injuries in soccer vs. handball reported that several soccer players (~80%) had

to continue to play, even injured, because the limit of substitutions was already done, presumably aggravating the injuries (Jørgensen, 1984). This situation tends to be even worse currently, as modern soccer is significantly more demanding (Barnes et al., 2014; Souglis et al., 2015; Silva et al., 2018).

Unlike other team sports (e.g., futsal), soccer has no time-out, which means that the players have no opportunity for a brief recovery or hydration and to obtain feedback from coaches. Should be great to allow time-out during soccer games, not only thinking in terms of health and physical performance, but also it might help coaches to organize his/her team potentially improving the quality of the entertainment for fans. Another physical demand that soccer has and other team sports do not have is the offside rule. To prevent offside, soccer players must move back and forth during the game. Such circumstances (i.e., restricted substitutions with no return, no time-out, and offside law) overload soccer players even more during the matches. If we consider that soccer matches have ~ 10 times higher injury rates than training sessions (López-Valenciano et al., 2020) and fatigue is associated with injuries (Ekstrand et al., 2004), the increment (up to five substitutions) due to the COVID-19, seems insufficient.

A recent paper showed that substitutes who participated in the games (non-starters) presented lower load (internal and external), contemplating both matches and training sessions, during six matches in 21 days (i.e., congested schedules) (Gualtieri et al., 2020a). Their data suggest that games are crucial in the training process, meaning that substitutes may be detrained. Typically, the coach has 12 substitutes players available, but only 25% of them (three) can participate in the game. The other nine (75%) could be using the time to train to avoid detraining. It is a waste of time and might be demotivating for players (Hills et al., 2018), without mention the financial waste for the clubs (e.g., hotels, travels). A “game changer” would be to release soccer substitutions during the games (i.e., unlimited). This update on the rules is simpler and easier than others, e.g., fewer competitions, since economic impact would be an issue (Ahlert, 2001).

We believe that unlimited substitutions including a return to the same game (like in futsal), or for example 12 substitutions during a game (could be only 3 moments to avoid long game stopping), might be an bright decision. If such changes do not happen now, the issue of several games with short days in-between (Bengtsson et al., 2013; Dellal et al., 2015; Gualtieri et al., 2020b), and consequently the incorporated fatigue and a higher risk of injuries (Bengtsson et al., 2013; Dellal et al., 2015), will continue in soccer. In addition to the possible health and financial benefits (i.e., high costs of an injured player) from releasing substitutions on soccer, it probably would improve the intensity of the games, improving the entertainment for fans. Entertaining is relevant for soccer business. Moreover, e-sports are growing worldwide (Jenny et al., 2018), and the new generation (e.g., born in 2015) will probably not enjoy a boring sport (e.g., low scoring, low intensity on the second half, low emotions). Thus, traditional sports must update the rules to compete to obtain fans of the new digital generations. Data exists for an improvement in the game intensity releasing unlimited substitutes. For instance, a study found that substitutes players covered a larger high-intensity running distance (Bradley et al., 2014). Another report

showed that midfield substitutes players covered higher total and at high-intensity distances and had a lower recovery time between high-intensity efforts matched to other midfield team-mates who continued the pitch (Carling et al., 2010). In addition, substitutes may produce physical and/or tactical incentive in soccer (Hills et al., 2020), and higher scoring following substitutions in basketball has been shown (Gómez et al., 2017).

In addition to the potential increment in game intensity, the potential decrement in injury risk during soccer games would also benefit team performance. A study following 11 years in the UEFA Champions League found that injuries deteriorate team performance (Hägglund et al., 2013). If the purpose to increase two more substitutions per match in soccer, due to the COVID-19 pandemic, is to avoid injuries, why not to do that regularly? On daily training, soccer coaches make alteration in the rules throughout activities called small-sided games (e.g., smaller area/player, total number of touches allowed) to improve specific skills (Hill-Haas et al., 2011). Our question is why not release total substitutions in official matches to have benefits?

Final considerations

Considering that injury risks are much higher during games (vs. training) (López-Valenciano et al., 2020) and that the soccer game itself is very demanding, releasing unlimited substitutions in elite soccer is a simple strategy to mitigate relevant concerns such as high injury rates and congested schedules. Clearly, the change in the soccer substitution rule due to COVID-19 is insufficient. Implementing unlimited substitutions may benefit soccer players' health, coaches' job, more entertainment for fans and sponsors (higher intensity), better soccer games (and seasons), optimizing sources, and prolonging the useful life of the players. A real game changer!

Additional Information

Competing Interests: The authors declare no competing interests.

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