INFLUENCE OF ESTRUCTURAL COMPONENTS OF ARTIFICIAL TURF SURFACE ON TECHNICAL PERFORMANCE IN AMATEUR SOCCER

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Abstract keywords

Artificial turf system, ball skills, technical standards, friendly matches, soccer.

Aim of abstract/paper - research question

In recent years, the use of artificial turf has grown exponentially; there has been a 200% increase in the number of soccer fields in just four years. The constant evolution of these sport surfaces and the proliferation of artificial turf supply companies have encouraged the design of different types of artificial turfs (with a wide range of structural components) designed to soccer practice. The introduction (or the lack of) an elastic layer, the type of sub-base, the infill system and fibre determine the mechanical behavior of the artificial turf system. However, the influence of the different structures of artificial turf on technical performance has not been studied so far.

Thus, the aim of this study is to examine the technical activities of Spanish amateur soccer players during friendly matches on different artificial turf system.

Literature review

The variability between different artificial turf systems has been demonstrated by assessing the properties of each structure, this heterogeneity can become greater than the differences between natural grass and artificial turf (Potthast, Verhelst, Hughes, Stone, & De Clercq, 2010). The surface shock absorption, vertical deformation of the fibre, the rotational resistance, the vertical rebound and horizontal rolling ball are different depending on the system installed (Burillo, Gallardo, Felipe, & Gallardo, 2012). Despite this, most of the research has examined the difference between natural grass and artificial turf. In this sense, Andersson, Ekblom and Krustrup (2008) analyzed the impact of these two surfaces on movement patterns, technical standards and players' perceptions. This study revealed that technical standard was similar during matches among both surfaces. However, fewer sliding tackles and more short passes were executed on artificial turf.

Currently, there is not any similar study on different artificial turf systems, so this research is important to know the influence of these surfaces and their mechanical properties on the playing style.

Methodology, research design and data analysis

Twenty-two male soccer players in two teams will be evaluated on four artificial turf systems of third generation (polyethylene and monofilament fibres, silica sand and SBR rubber) that present differences in their supporting structures (sub-base and shockpad). The first system have an asphalt sub-base without a shockpad, the second field have the same sub-base with a shockpad. The other two systems are constructed of compacted gravel sub-base with a shockpad only in the fourth system.

The technical match activities will be register from video recording using a match analysis software program (Nacsport Scout, version 1.3.300, Spain) during the first forty-five minutes of the 11-a-side soccer match in each experimental condition. Registered activities will be classified into passes, receptions, headers, tackles, dribbling, lost ball, throw-ins, free kick, shots and goals scored for all outfield players. The position on the field where the passes are performed will be register. These positions are classified according to Andersson, Ekblom and Krustrup (2008) as defensive zone (the third of the field closest to the defended goal), midfield zone (the middle third of the field) and the offensive zone (the third of the field furthest away from the defended goal). The four games will be analyzed by three researchers specialized in the analysis of matches.

The results will be expressed as means, standard errors of the mean (SEM) and percentages of totals. We will make comparisons between the four artificial turf systems and differences between groups will be determined by one-way analysis of variance (ANOVA). SPSS package (SPSS v 19.0. Inc., Chicago, IL, USA) for personal computers will be used for the statistical analysis. Significant differences will be assumed when $p < 0.05$.

Results, discussion and implications/conclusions

The results of this research are not yet available at the time. However, this study has already started and we will have all the data in May of this year, so we guarantee that the results and conclusions will be presented at the 21st EASM Conference.

References

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