

# Physical and Technical Comparisons between Various-Sided Games within Professional Soccer

## Authors

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## Key words

- football
- aerobic
- technical actions
- fitness training
- heart rate

## Abstract

This study compared the technical activity and physical movements of various-sided games within professional soccer. It also examined the test-retest reliability of sided games using various numbers of players. 10 elite male players from a Scottish Premier League performed small- (SSGs: 4 vs. 4), medium- (MSGs: 5 vs. 5 to 8 vs. 8) and large- (LSGs: 9 vs. 9 to 11 vs. 11) sided games each lasting for 3×5 min. Results show significant physical differences ( $p < 0.05$ ) between SSGs, MSGs and LSGs for most of the variables measured. It was shown that SSGs induce a sig-

nificantly faster playing speed when compared to MSGs and LSGs (150.5 vs. 108.3 vs. 120.4 m·min<sup>-1</sup>,  $p < 0.01$ ) but significantly less ( $p < 0.01$ ) repeated high-intensity efforts (0.88 vs. 4.40 m), high-intensity running (7 vs. 39 m) and sprint distance (0 vs. 11 m) when compared to LSGs. Findings also revealed significant differences ( $p < 0.05$ ) between SSGs, MSGs and LSGs in technical demands (passes, dribbles, shots, headers). High levels of reproducibility (ICC=0.99) were yielded when using the same-sided games, pitch sizes and possession rules. This study provided information on different-sided games to facilitate its use as part of a periodised weekly structure.

## Introduction

The use of small-sided games (SSG) is a recommended training modality that promotes significant performance enhancement and training efficiency through the combination of technical, tactical and physical components [7]. Moreover, the favourable physiological responses elicited by this method of training satisfy its application within elite level soccer as a conditioning stimulus capable of improving aerobic endurance capacity [5,21,25–28]. In fact, several studies have shown that the physiological responses of SSG can be modified by manipulating variables such as technical and tactical constraints [1]; pitch size [3,23], player numbers [15,30], bout duration [11] and number of individual touches per possession [6]. However, setting aside its emergence as a useful training modality for aerobic-fitness and technical-tactical skill development [16], it seems that, when compared to actual match play, SSGs may be of insufficient intensity to simulate high-intensity and repeated-sprint demands [4,12]. These findings are reinforced by the reported potential ceiling effects associated with a failure to achieve high exercises intensities in players retaining either

high aerobic endurance capacities or technical competency [2]. As identified in the literature, the proliferation of high-intensity and repeated-sprint demands is more associated with match-play when introducing larger-sided games formats [17]. This may be a result of large-sided games (LSGs) being played on increased pitch sizes combined with the fact that players in these game formats have less involvement with the ball [27]. These game formats also result in increased number of sustained high speed/high intensity runs occurring when working 'off the ball' in order to lose opponents or create a scoring opportunity. Previous research within this area have shown SSGs (3 vs. 3) to elicit higher HR responses and number of ball contacts per individual but fewer total ball contacts per game when compared to LSGs (9 vs. 9) [27]. Unfortunately, this particular study only took into account heart-rate and technical parameters and did not detail activity profiles (i.e., time motion analysis). Similarly, Dellal et al. [7] found all positional roles presented higher HR values and greater high-intensity activities during SSG (4 vs. 4) but with lower blood lactate concentrations when compared to LSG (actual match play).

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## Bibliography

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