Offensive rating-time coordination dynamics in basketball. Complex systems theory applied to basketball

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Previous research on coordination dynamics has targeted the 1 vs. 1 sub phases. This study focused on collective variables. The aim of this work was to check the reliability of ecological dynamics to describe the dynamics of basketball contest as the interaction of two teams along time. Control and Order parameters were described as offensive rating across time. Games not classified by mathematical model (discriminant analysis) of ACB league were analyzed in ecological dynamics terms. Offensive ratings moving average in each minute of 73 games were used to calculate games? relative phase trough Hilbert transform. Different groups of games were found, according to their relative phase characteristics. Results showed different tendencies in game dynamics. Stable relations in-phase, anti-phase and transitions were found. The findings pointed the importance of quality and location in team´s performance. Finally, this study provides useful information for coaches? plans (game strategy, training methods) in order to improve their teams´ performance.

Ecological dynamics

Relative Phase

Team sport