Analysis of tactical Structures in team handball by means of artificial neural networks

Mark Pfeiffer[1], Jürgen Perl[2]

[1]Institute for Applied Training Science (IAT), Leipzig

[2]University of Mainz

Abstract

In the field of sports games, the analysis of the game structure as well as the analysis of the opponent team is of major interest for the training process in order to optimise tactical skills. Based on methodological problems of present game analysis, some recent approaches apply artificial neural networks to examine the game structure. With the intention to analyse types of tactical structures in team handball, we use a neural network to identify a number of such types which represent play processes with similar tactical structures. Therefore, a process-oriented observation model of the offensive play was developed on the basis of offensive attempts. 15 matches (12 teams) of the Women's Junior World Championship 2001 were observed. Afterwards, a prepared neural network (DyCoN) was trained with 2900 offensive attempts (processes) from all teams to coin offensive attempt patterns. The contribution shows that a neural network can be used in order to identify typical tactics of different teams.

KEY WORDS: NEURAL NETWORK, GAME ANALYSIS, MODELING