

# Discriminatory power of women handball game-related statistics at the Olympic Games

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## Introduction

Handball is a complex sport game that is determined by the individual performance of each player as well as tactical components and interaction of the team (Wagner, 2014). Handball is played worldwide and it has been an Olympic event for females since 1976. The major part of studies in females have been development in physical and physiological aspects (Manchado et al., 2013). While, in recent years, studies on performance analysis are common in men, not the case in women, where they are scarce or non-existent. In this context, the objective of this present study was to identify characteristics discriminating the performance between winning and losing teams.

## Methods

We analyzed the results and game-related statistics of 236 women's matches played in three last Olympic Games (2008, 2012 and 2016). The data were retrieved from the official book of scores on the official Website of each Olympic Games. The game-related statistics considered were: total shot, 6 m shot, wing shot, 9 m shot, penalty shot, fast break shot, breakthroughs shot, goalkeeper (GB) total shot, GB 6 m shot, GB wing shot, GB 9 m shot, GB penalty shot, GB fast break shot, GB breakthroughs shot. These variables are:  $(\text{goals} \times 100) / \text{shots}$  or  $(\text{save goals} \times 100) / \text{shots}$ . Other variables studied were: yellow cards, red cards, 2 minutes exclusions, assists, technical foul and steals. The predictor variables influencing the final performance in the games (winning teams) were determined by means of a discriminant analysis using the sample-splitting method.

## Results

The predictive model classified correctly 83% of teams (84% of winning teams) using four variables: total shoot, goalkeeper-blocked shots, goalkeeper-blocked fast break shots, technical fouls and steals (Wilks's lambda: 0.514, canonical correlation index: 0.697).

## Discussion & Conclusion

Performance analysis is popular approach to investigate the most important factors for the win of the game. Previous studies identified several important performances in winning teams, such backcourt efficiency (Guric et al., 2005) wing shoot efficiency (Ohnjec et al., 2008). Also, the current predictive model indicated that the performance of goalkeeper is an important factor for winning the game in women. Finally, technical fouls and steals were selected by predictive model. Technical fouls was a performance indicator in World Championship (Ohnjec et al., 2008). This could indicate the relevance of do not technical fouls (for example excessively rough play) and training the anticipation.

## References

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