Handball game-related statistics in Olympic Games: discriminatory power in males

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Introduction
Handball studies in males have frequently focused on the analysis of the anthropometric, physiological and functional profiles, among others. Recently, the performance analysis studies have been published. The first studies have showed that the differencing variables between winners and losers team were: fast break goals and pivot position goals (Bilge, 2012) and efficiency of total attacks, positional attacks, shot and distance shot and goalkeepers blocked shot (Skarbalius and Puk nas, 2012). 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 men's matches played in three last Olympic Games (2008, 2012, 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: (goals100)/shots or (save goals100)/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 80% of teams (85% of winning teams) using three variables: total shoot, goalkeeper-blocked shots and technical fouls (Wilks's lambda: 0.581, canonical correlation index: 0.647).

Discussion & Conclusion
In this study analysed performance among male Olympic handball players in the years 2008, 2012 and 2016. The results implied that the most predictive model (80%) for the male team performance included three variables: total shoot, goalkeeper-blocked shots and technical fouls. The current predictive model are somewhat in line with a previous study where field shots efficiency and goalkeeper performance were relevant factors for winning games (Skarbalius and Puk nas, 2012). On the other hand, in contract with other study (Bilge, 2012), the current model showed that technical fouls was discriminatory of winning teams. This study could help coaches to improve their game strategies and tactical decisions.

References
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