DIFFERENCES IN SHOOTING ACCURACY AND EFFICIENCY OF THE TOP WOMEN'S TEAMS AT THE 2021 TOKYO OLYMPIC GAMES

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Abstract
This study is established on the aim to analyse a game and determine differences in a shot efficacy in an offence the woman's handball national teams at the Olympic games in Tokyo 2021. Four national teams were analysed: France, Russia, Norway and Sweden. To analyse a game in the offence, 12 variables were used: total number of shots (sut_uk), efficient number of shots (sut_usp), total number of shots from 6 meters (sut_m6_uk), efficient number of shots from 6 meters (sut_m6_us), total number of shots from wings (sut_kril_uk), the efficient number of shots from wings (sut_kr_us), total number of shots from 9 meters (sut_m9_uk), efficient number of shots from 9 meters (sut_m9_us), total number of shots from 7 meters (sut_m7_uk), efficient number of shots from 7 meters (sut_m7_us), total number of fast centres (brzc_uk) and total number of efficient fast centres (sut_brzc_us).
All national teams had the approximal number of efficient shots on a goal. The highest number of efficient shots from 6 m had the French and Norwegian national teams. From the wing position, the highest number of efficient shots had the Norwegian national team, while the lowest number of efficient goals from the wing position had the Russian national team. The Norwegian and French national teams were approximately efficient in the shot's realisation from 9 m. In a realisation of the fast centre, the Russian national team stands out with the highest number and the French national team had the lowest number of efficient shots.
Key words: cumulative analysis, handball, woman, shooting accuracy, efficiency,Olympic games

INTRODUCTION

The handball game records the progressive development and constantly require an intensive competition for the ball, as well as a competition with time and space; a maximal concertation and attention, as well as fast reaction and expression of willing moments in different phases of the game. The increase in both speed and dynamics in the offence and defence phases, the speed of an element's performance with and without the ball in the game, the performance of fast actions in the offence, are characteristics of the modern handball. One of the problems, which undergoes scientific research, is competition between teams and an efficacy and shooting accuracy in the mentioned sport. The performance of any technical element in the handball is impossible to perform without the adequate motoric ability, as well as the quality of the motoric ability is impossible to perform without the rational technique.
The technical-tactical element of elite teams is reaching a perfection, and the coaches' tactical idea gives an excitement and a beauty to this game therefore, their performance is representing an important link to achieve the best result. It is impossible to say, how much technical-tactical elements are going to be expressed in the maximum extend, because the handball is the sport in which prevails a direct contact game that is not, in most situations, allowing an expression of clean technical-tactical elements.
Today studies are referring to identifying differences between a frequency and efficiency of a shot in relation to a team's efficacy as well (Apitzs, et al., 1997; Taborsky, 2008); and an influence of tactical elements in finals of the final match results (Srhoj, et al., 2001; Rogulj, et al.,2009).
The complexity of the situation in the game requires a prepared handball player, capable to precisely adjust technical-tactical actions in the game and to effectively implement in an optimal time and intensity. A condition to achieve these requirements is a special structure and high level of phyco-motoric ability, a mastery of technical-tactical elements in the game situation and high level of functional abilities (Kurelić, et al., 1975., Rogulj, 1990). An efficacy in the handball represents an achievement of the best effect in the game regardless on a player's position.
Taking into consideration all above, this study has been undertaken to perform the game analysis, to determine an shooting accuracy and difference in an offence of four first placed woman handball national teams at the Olympic games in Tokyo.

METHODS

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Participants

In this study, based information were obtained from first four handball national teams of France, Russia, Norway and Sweden during eight matches at the Olympic games in Tokyo.

Variables

In this study, the total of 12 offence's variables were obtained from 8 matches of woman's handball national teams and analysed: total number of shots (sut_uk), efficient number of shots (sut_usp), total number of shots from 6 meters (sut_m6_uk), efficient number of shots from 6 meters (sut_m6_us), total number of shots from wings (sut_kril_uk), efficient number of shots from wings (sut_kr_us), total number of shots from 9 meters (sut_m9_uk), efficient number of shots from 9 meters (sut_m9_us), total number of shots from 7 meters (sut_m7_uk), efficient number of shots from 7 meters (sut_m7_us), total number of fast centres (brzc_uk) and total number of accomplished fast centres (sut_brzc_us).

Statistical analysis

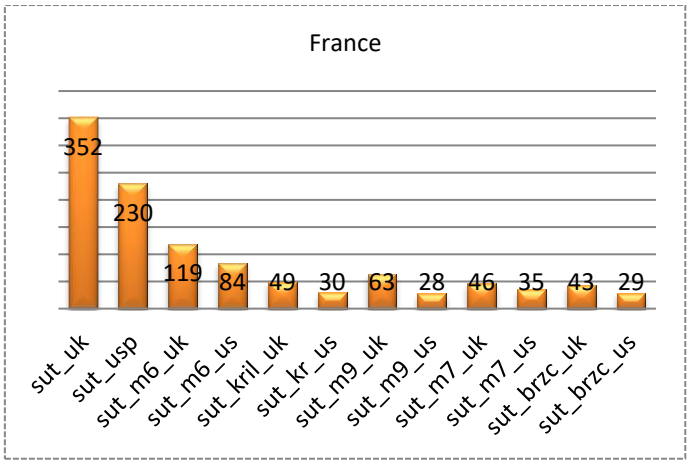
The descriptive data of directed shots and efficient shots were analysed - cumulative analysis. For the statistical analysis, Microsoft Excel programme were used.

RESULTS

Cumulative analysis

Observing total number of shots, it is evident that the French national team had 352 shots in total during 8 played matches out of which 230 or 65% shots were scored goals. Furthermore, mentioned national team had 119 in total out of which 84 or 71% were efficient shots from 6 m. The total shots from wings were 49 shots out of which 30 or 61% were efficient shots while 28 or 44% were efficient shots out of 63 shots from 9 m. They had 46 shots from 7 m out of which 35 or 76% were efficient shots, while 29 or 67% shots were efficient out of 43 fast centre shots (Graf 1.).

Graf 1. The French national team's shooting efficiency and accuracy during 8 played matches



The Russian national team had 362 shots in total during 8 played matches and 236 or 65% shots were efficient. Furthermore, mentioned national team had 88 shots in total out of which 66 or 76% were efficient shots from 6 m, while 26 or 60% shots were efficient shots out of 43 shots from wings. The national team 82 times directed to a goal from 9 m out of which 33 or 40% were scored goals, while 48 times directed to a goal from 7 m out of which 39 or 81% were scored goals. Russian national team performed 41 fast centres during 8 matches and 34 or 83% were efficient (Graf 2.).

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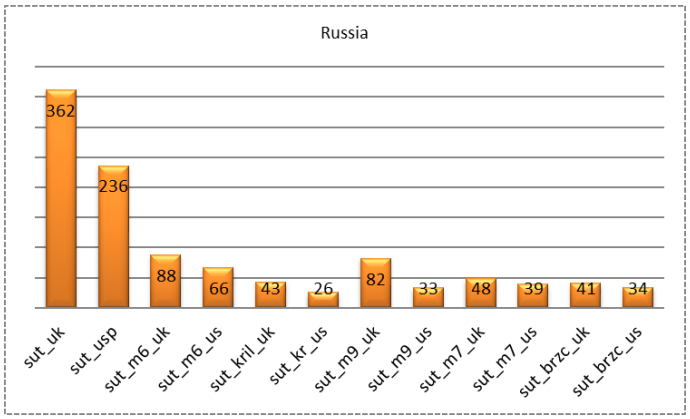
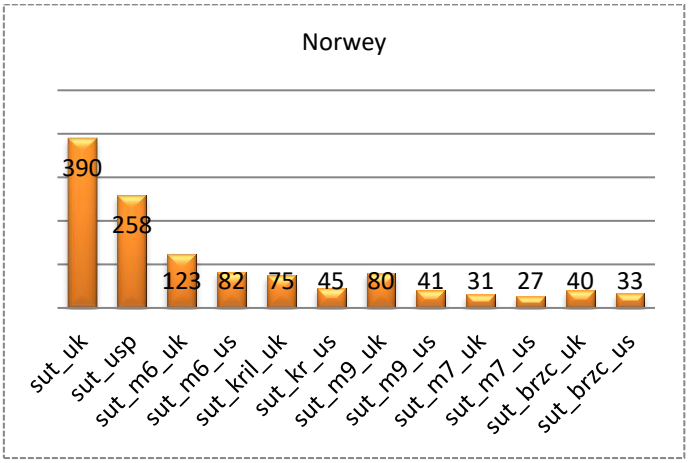
Graf 2. The Russian national team's shooting efficiency and accuracy during 8 played matches



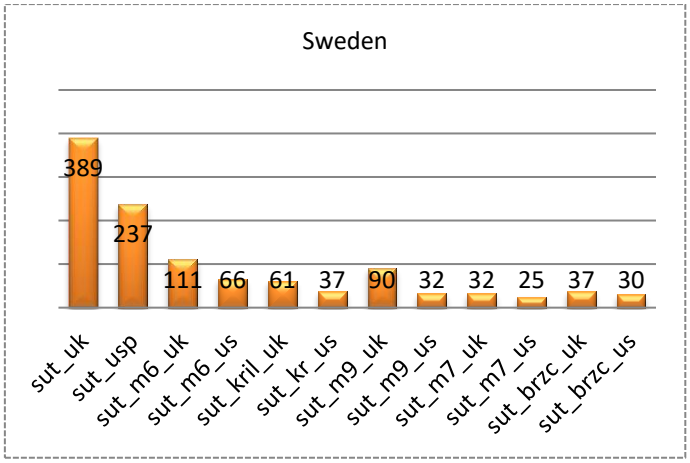
The Norwegian national team had 390 shots in total during 8 played matches and 258 or 66% were scored goals. From 6 m line, they directed to a goal 123 times and 82 or 67% were scored goals, while from wings positions, they had 75 shots in total and 45 or 60% were scored goals. The national team 80 times directed to a goal from 9 m out of which 41 or 51,25%. were scored goals. From 7 m, they had 31 shots in total out of which 27 or 87% were effcient shots, while from fast centre, they had 40 shots in total out of which 33 or 83% were scored goals (Graf 3.).

Graf 3. The Norwegian national team's shooting efficiency and accuracy during 8 played matches



The Swedish national team 389 times directed to a goal and 237 or 61% were scored goals. From 6 m line, they had 111 shots in total and 66 or 59% were scored goals, while from wings positions, they had 61 shots in total and 37 or 61% were scored goals. From 9 m position, they directed to a goal 90 times and 32 or 36% were scored goals. Total number of 7 m shots were 32 and 25 or 78% were efficient shots, while they performed 37 fast centres and 30 or 81% were efficient. (Graf 4.).

Graf 4. The Swedish national team's efficiency and accuracy during 8 played matches



DISCUSSION

All national teams had an approximate number of the efficient shots to the goal. However, individually in analysed variables, the French national team and third placed the Norwegian national team had the highest number of efficient shots from 6 m, as well as the highest number of efficient shots from 6 m. The Norwegian national team had the highest number efficient shots from the wing's position, while the Russian national team had the lowest number of scored and efficient goals from the wing's position. Furthermore, the Swedish national team had the highest number of scored shots with the lowest efficacy from 9 m. The Norwegian and French national team were approximately efficient in the realisation of shots from 9 m. The Russian and French national team had the highest number of scored shots from 7 m with approximal efficiency (the Russian national team succeeded 4 more goals then the French national team). All national teams, in total number of fast centre shots, had approximal values but the Russian national team stands out with the highest number of efficient goals and French national team with the lowest number.

PRACTICAL ASPECTS

Based on the analysis in this study, it is evident that the game of national teams was based on shots from 9 m, shots from 6 m, and on the fast performance of the fast centre. Obtained information create assumptions about identifications those parameters by which national teams differ on these tournaments.

Following work of handball players (regardless to juniors, seniors, cadets, etc.) is of an exceptional importance for their further importance but also statistical indicators following handball matches are of an exceptional importance both for coaches and handball experts who are planning training processes. They are important for planning a training, a training process, as well as elimination of deficiencies and errors, from one side, and improvement of elements from the other side. Indicators' analysis that contributed to achieve these results, and elimination of qualitied exact information are important for the preparedness' level of national teams taken for this study, reveal important contribution in practical work with national selections and individuals who are applying for national team.

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