DIFFERENCES BETWEEN WINNING AND DEFEATED TEAMS AT THE CADET STATE CHAMPIONSHIP OF BOSNIA AND HERZEGOVINA IN WATER POLO

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Abstract: The aim of this paper is to determine the differences between certain segments of the water polo game of the winning and defeated teams at the state championship of Bosnia and Herzegovina for cadets. By analyzing the results of the research on a sample of 7 teams in 21 games from the state championship of Bosnia and Herzegovina in water polo for the cadet category, we came to the conclusion that there is a statis-tically significant difference between winning and losing teams. 19 variables were tested on this sample, and they are: Goals scored, goal attempts, goals from the action, 6 on 5, goal from 6 on 5, shot from 6 on 5, goals from the anchor, penalty, penalty goal, defended penalty, counter foul, counterattack, goal from counterattack, ball sprint, shot from foul, goal from foul, Intercepted balls, corners and goal frame. It can be concluded that the results, even if they are quite similar, there was a small statistically significant difference, which shows that all teams are of approximate qualities when it comes to motor skills, techniques and tac-tics. It is recommended that a more efficient plan and program be developed to improve these capabilities as well as coach training for this Olympic sport.

Keywords: water polo players, winning teams and defeated teams

INTRODUCION

Water polo is a team water sport. The game con-sists of four quarters in which two teams try to score goals by throwing the ball into the opponent's team's goal. The team with the most goals is the winner of the match in the end. The water polo team consists of one goalkeeper and six players on the field in the pool at any one time. In addition to these seven players, teams can have substitutes on the bench as well as a reserve goalkeeper. Water polo consists of players who swim, with and without a ball, a eggbeater (a form of maintaining head above water), throwing and catching a ball. All these actions with the ball must be performed with one hand except the goalkeeper. In every team, every player, except the goalkeeper, has an offen-sive and defensive role, which requires the player to be able to play and attack and defence. Water polo is a contact sport, so minor offenses and exclusions are very common in the game. This sport is known as a very rough sport, the reason for that is that the referees at matches are quite limited by the surface of the water, below which they cannot see. The players know how to use it in every possible way to stop the opponent's intentions without comitting foul. As all players, except the goalkeeper, are expected to stay afloat throughout the match, players either swim or do a water polo eggbeater. Players can often and easily cover up punches to their op-ponents as an act of keeping afloat on the water by doing eggbeater. The water polo team consists of 7 players with assigned roles: center, winger, defend-er, outside striker and goalkeeper. Depending on the development, any player can take over from the given role, but usually players play the given role (Lozovina, M., Pavičić, L. and Lozovina, V., 2012). Each player has a specific place on the court, and a umbrella formation is the most common. The posi-tion of players remains mostly the same throughout the game, and the players rarely move far from their positions. Wing players and defenders are often referred to as players on the edge. The typical numbering system for these positions starts with the attacking wing on the right side of the oppo-nent's goalkeeper. A outside striker that is counter-clockwise from position one is called two. Moving in the same direction, the center back is three, the next outside striker is four, the second wing five, and the anchor six. The most basic and popular offensive lineup is known as 3-3. That name was created because there are two lines of three players in front of the opponent's goal. Another offensive setting more often used by professional teams is called umbrella, where players on the rim form an umbrella around the goal, with a hole placed in the middle. An additional offensive setup is a 4-2 or double set. That is when there are two anchors in front of the goal. The positions of the defense are often the same as the offensive positions, only transferred to the other side. Like most team sports, defence can be played either in zones or man to man, all depending on the tactics chosen by the coach, by tactics we mean the coordinated activity of the whole team, whose ultimate goal is to score if in possession of the ball and in the at-tack phase, or prevent a goal when it is in the de-fensive phase and is not in possession of the ball (Lozovina, V., Gusić, Ž. and Lozovina, M., 2006). Defense can also be played as a combination of zone and man to man in what is known as the "M" zone, in which the main defensive player deploys his teammates in the zone to better defend the anchor position. Trumbić (2010) divides the tactics of water polo into 3 parts: attack system, defense system, attack and defense systems with a player more and a player less. The aim of this paper is to determine the differences between certain seg-ments of the water polo game of the winning and defeated teams at the state championship of Bos-nia and Herzegovina for cadets.

METHODS

Subjects

The sample consists of 7 teams at the state championship of Bosnia and Herzegovina in water polo for cadets. The sample consists of an analysis of winning and losing teams from 21 games in 2019. The research was realized in the championship matches with the appropriate conditions necessary for testing in this research.

Procedures

The sample of variables consists of 19 tests to assess situational efficiency in water polo at different stages of the game in attack and defense. The following tests were used for evaluation:

Goals scored This variable shows the total number of goals scored in matches. This data was collected using the official scoreboard on which the result was shown, and it only recorded goals recognized by the referee, ie. goals scored in accordance with the rules. Attempts to score this variable means the total number of shots on goal taken in accord-ance with the rules and in a correct manner, includ-ing shots that were blocked by a defensive player or goalkeeper, ended behind or next to the goal, bounced off the goal frame and of course those shots which ended in a goal. Goals from the ac-tion this variable indicates the number of goals scored from the game in accordance with the rules, ie. goals scored after elaborate and organized ac-tion, including goals scored from 6 on 5. 6 on 5 this variable indicates the number of "6 on 5" actions, played by one or the other team during the match. The data was collected using the official scoreboard, which states the number of excluded players. Goal from 6 on 5 this variable means the number of goals scored from 6 on 5, where the opposing team had the player excluded. Goals were taken into account only if the team in defense had at least one player less in the field. Goals from the anchor this variable indicates the number of goals scored from the anchor position, ie as in modern water polo this position is called position 6. Penalty this variable indicates the number of penalties awarded per game. Goal from penalty this variable means goals scored from penalty. Goals are taken into account only if the referee awarded a penalty and the player scored. Penalty saves This variable indicates the number of successful penalty defenses by the goalkeeper. The shots that ended next to or over the goal were not taken into account, but only the successful interventions of the goalkeeper. Counter foul or foul in attack, this variable refers to offenses committed by players of the team that was in attack, ie in possession of the ball. Counterattack, this variable indicates the number of attacks in which players have successfully made the transition from defense to attack, while making the so-called. excess players in attack. Counter-attacking goal this variable indicates the number of goals scored from a counterattack. Only the goals scored by the team after the successful transition in which they made the so-called excess players in attack. Ball sprint each quarter begins with a ball floating on the water, where players of both teams swim for the ball to the center of the court. This variable indicates the number of successful sprints for the ball by one or the other team. Shot from foul this variable indicates the number of shots on goal taken after a defensive player has committed an offense against an attacking player, provided that that offense is not an exclusion or brutality offense. Goal from foul this variable indi-cates the number of goals scored directly from the offense, and after the defensive player has commit-ted an offense against the attacking player, provid-ed that the offense is not an offense for exclusion or brutality. Intercepted balls this variable indi-cates the number of intercepted balls without of-fense. Poorly executed shots on goal that ended behind or next to the goal or that were saved by the goalkeeper were not taken into account. Corners A corner in water polo is awarded by the referee only if the goalkeeper has touched the ball before it goes out of bounds. This variable indicates the number of corners per game. Goal frame This variable indicates the number of shots on goal that hit the goal frame and did not end in a goal.

Description of the research

The research was conducted in person at the matches of the BiH State Championship as a spectator, accordingly there was no need for any per-mission to conduct this research. The conditions for conducting this research were the same for all par-ticipants in the tournament (air temperature was from 26 to 30 °, water temperature was from 24 to 26 degrees Celsius, swimming pool dimensions 30 x 20 meters and pool depth 2.20 meters). During the measurement, the subjects wore equipment prescribed by water polo rules. After collecting the test data, the measurement lists were completed, and the data were processed by appropriate meth-ods for this research work.

Data processing methods

Data processing methods were chosen in accord-ance with the characteristics and size of the sample of respondents, hypotheses in the explanation of this research, as well as the subject and problems, and the goal of the research. Microsoft Office Excel 2007 software was used for data entry. The IBM SPSS Statistics statistical package (version 20.0, SPSS Inc, USA) was used for statistical data pro-cessing. First, descriptive statistical methods were used, then intercorrelation, and finally, to determine the differences between the frequencies from the national championship, the Chi-Squere test at the level of

statistical significance of 5% was used. The results are presented in tables and graphs.

RESULTS

In Table 1 we can see the results of the differences between the frequencies of variables among the winners and defeated teams at the BiH national championship for cadets. By reviewing the Chi square test we can clearly see that there are statis-tically significant differences of 0.000 in the variables tested. By analyzing the individual variables, we can notice that a total of 141 (11.46%) goals were scored, of which the winners scored 89 (13.57%) goals, while the defeated teams scored 52 (9.06%). Winning teams tried to score 148 (22.56%) times, and defeated 146 (25.44%) times out of a total of 294 (23.90%) attempts on the opponent's goal. Out of 67 (5.45%) goals from the game, the winners scored 38 (5.79%) goals, and the defeated teams 29 (5.05%) goals. The winning teams had 52 (7.39%) times 6 on 5 in the field, while the winning teams had 46 (8.01%) 6 on 5. The goal from the 6 on 5 defeated team managed to score 19 (3.31%) times, while the winners man-aged to score 25 (3.81%) goals out of a total of 44 (3.58%). The winning teams shot 41 (6.25%) times from the 6 on 5, while the winning teams did so 43 (7.49%) times out of a total of 84 (6.83%) at-tempts to score from the 6 on 5. The anchors of the winning teams scored 9 (1.37%) goals, and the anchors of the defeated teams scored 6 (1.05%) goals out of a total of 15 (1.22%) goals scored from the anchor position. A total of 33 (2.68%) penalties were awarded at the championship, of which 22 (3.35%) were awarded to the winning teams, and 11 (1.92%) to the defeated teams. The winning teams scored 20 (3.05%) goals from pen-alty, while the defeated teams scored 8 (1.39%) out of 28 (2.28%) of the total goals scored from the penalty. The goalkeepers of the winning teams defended 1 (0.17%) penalty, while the goalkeepers of the defeated teams managed to stop 2 (0.30%) out of a total of 3 (0.24%). Out of a total of 21 (1.71%) counter-fouls committed in the championship, the winning teams made 11 (1.68%), while the defeated teams made 10 (1.74%) counter-fouls. Winning teams surfaced 30 (4.57%) counter-attacks, and defeated 13 (2.26%) out of a total of 43 (3.50%) counterattacks. A total of 20 (1.63%) goals were scored from the counterattack, of which the winning teams scored 15 (2.29%) goals, and the defeated teams 5 (0.87%) goals. The winning teams were 11 (1.68%) faster in the sprint for the ball, while the defeated teams were 25 (4.36%) times better in the sprint for the ball than a total of 36 (2.93%). Defeated teams shot from the foul 32 (5.57%) times, and the winners did so 17 (2.59%) times out of a total of 49 (3.98%) attempts to score from the foul. Teams at the national champi-onship of BiH scored a total of 10 (0.81%) goals from fouls, of which the winning teams scored 4 (0.61%) and defeated teams scored 6 (1.05%) goals. The players of the winning teams took 88 (13.41%) balls from the opponents, while the players of the defeated teams did the same 82 (14.29%) times out of a total of 170 (13.82%) balls taken in the championship. Out of a total of 20 (1.63%) corners, the winning teams took 9 (1.37%) and the defeated teams 11 (1.92%) corners. The winning teams hit the goal frame 25 (3.81%) times, while the defeated teams hit the goal frame 29 (5.05%) times out of a total of 54 (4.39%) times.

Table 1. Results of winning and losing teams in water polo at the cadet state championship of Bosnia and Herzegovina in water polo.

Variables	Winners	Defeated	Total
Goals scored	89 13.57%	52 9.06%	141 11.46%
Attempts to score	148 22.56%	146 25.44%	294 23.90%
Goals from the action	38 5.79%	29 5.05%	67 5.45%
6 on 5	52 7.93%	46 8.01%	98 7.97%
Goal from 6 on 5	25 3.81%	19 3.31%	44 3.58%
Shot from 6 on 5	41 6.25%	43 7.49%	84 6.83%
Goals from the anchor	9 1.37%	6 1.05%	15 1.22%
Penalty	22 3.35%	11 1.92%	33 2.68%
Goal from penalty	20 3.05%	8 1.39%	28 2.28%
Penalty saves	2 0.30%	1 0.17%	3 0.24%
Counter-foul or foul in attack	11 1.68%	10 1.74%	21 1.71%
Counterattack	30 4.57%	13 2.26%	43 3.50%
Counter-attacking goal	15 2.29%	5 0.87%	20 1.63%
Ball sprint	11 1.68%	25 4.36%	36 2.93%
Shot from foul	17 2.59%	32 5.57%	49 3.98%
Goal from foul	4 0.61%	6 1.05%	10 0.81%
Intercepted balls	88 13.41%	82 14.29%	170 13.82%
Corners	9 1.37%	11 1.92%	20 1.63%
Goal frame	25 3.81%	29 5.05%	54 4.39%
Total:	656 53.33%	574 46.67%	1230 100%
Chi-square = 205;Degrees of freedom =19; Probability = 0.000			

DISCUSSION

From the table shown for the variable "Goals scored" we can conclude that the winning teams were much more efficient in the tournament, scoring a total of 89 goals, while the defeated teams scored 52 goals. The reason for that is the much more efficient transition from defense to attack, and the placement of players in attack, as well as the realization of a larger number of 6 on 5. According to Ademović et al. (2020) faster game was realized at the tournament in Sisak because the difference between the number of attempts to score a goal is higher than the tournament held in Sarajevo by 309 attempts, while the table shows the variable "Attempts to score" we can see that both sides had approximately the same number of goal attempts, ie. winners 148 and defeated teams 146, so from this variable we can conclude that the defeated teams lacked the realization of shots on goal, and that the players in the tournaments in Sisak and Sarajevo played much faster. The varia-ble "Goals from the game" indicates that the play-ers of the winning teams scored more goals from the action, ie. active play, the reason for this may be that the winning teams based their game more on scoring goals from an elaborate attack, than scoring goals from fouls, etc. The players of the winning teams scored 38, and the players of the defeated teams scored 29 goals from the action. Trivun et al (2019). The authors in their re-search came to the conclusion that the teams that finished the game as the winner were more domi-nant in almost all variables related to shot efficiency, had a more efficient goalkeeper, more efficient shot blocking performance, better player utilization and more efficient swimmers. swimming for the ball. The study did not identify statistically signifi-cant differences in the variables; lost balls, won balls, percentage of shots from 5 meters and the total number of fouls in the game. From the table of the variable "6 on 5" we can see that the defeat-ed teams played a little rougher, ie. more aggres-sive in defense unlike the winning teams, making 52 exclusions, while the winning teams made 46 exclusions in the state championship. With the table and graphical display of the variable "Goal from 6 on 5" we can conclude that the players of the winning teams took more opportunities from 6 on 5 situations 25, while the players of the defeat-ed teams were less efficient from these situations converting 19 situations, the reason is more effi-cient transition of winning teams from the "umbrel-la" to the setting for the 6 on 5, as well as faster and better flow of the ball. From the table of variables "Shot from 6 on 5" we can conclude that the players of both teams shot from 6 on 5 same number of times, which indicates that both sides managed to develop the action with the 6 on 5, which means that defence was not at the highest level on either side. The variable "Goals from the anchor" shows us that the teams had better players in the anchor position, we can also conclude that the winning teams have repeatedly created a situation from which the anchor can score. The variable "Peterac" confirms the claim that the players of the defeated teams played a bit rougher, more aggressive. The table and graph of the variable "Goal from penalty" indicate that the players who performed penalties on both sides were calm and concentrated enough to use most of the awarded penalties. From the table and graph of the variable "Penalty saves" we can conclude that the goalkeepers on both sides were not at the highest level when it comes to defending penalty. The variable "Contra-faul" shows equally rough play on both sides in the attack. The big difference between the winning and losing teams in the results of the table and the chart of the variable "Counterattack" indicates that the players of the winning teams came to the tour-nament significantly more physically ready.

The variable "Goal from the counterattack" shows us that the players of both teams were not concen-trated in the end of the counterattack, because the players of the winning teams from 30 counterat-tacks used 15, while their opponents from 13 used only 5. Similar results were obtained by Mirvić et al. (2011) where they came to the conclusion that the winning teams have a more effective counter-attack, because they had better swimmers and better swimming, so the defensive team committed offenses which lead the winning team to achieve better success and the game was based on the central player because the central player is the playmaker. Variables "Sprint for the ball" we can conclude that the players of the defeated teams had faster individuals in the team. The variable "Foul shot" shows us that the players of the defeat-ed teams shot much more from the foul, which indicates the lack of coordination and the inability of the team to organize the attack, and to shoot from the action. From the tables of the variable "Goals from fouls" we can conclude that the de-fense of the shot from foul (block) on both sides was good, because neither side was effective from the offense. Variables "Intercepted balls" we can conclude that the players of both sides managed to take the ball to the opponent several times without a foul, which indicates that the individual placement of players in defense was at a satisfactory level. Variables "Corners" we can conclude that the goal-keepers of the defeated teams had a little more work. The table and graph of the "Goal Frame" variable show us that players on both sides were almost inaccurate a total of 54 times. Mirvić et al. (2019) The outcomes of the women's water polo Olympic unbalanced games are determined by unusual player events. Therefore, top women's water polo coaches and physical coaches can plan sound training according to the specific match data reported for the Olympics. As can be seen from this study, it can be seen that the results show a bal-anced game which is not the same case in the previous study. All this proves to us that coaches still need to be educated when it comes to

specific motor skills, technical and tactical segment in water polo. Hraste et al. (2016). We came to knowledge that the results of this research can be applied in the selection of teams and players, in selecting the appropriate concept of the game and for organizing a suitable training concept. Mirvić et al. (2014). The teams that prevailed were more prepared in motor skills and had faster swimmers, due to the large number of goals scored from the counterattack. The authors also concluded that there were more fouls (rougher play) in the game compared to earlier water polo matches. The defeated teams committed several fouls during the counter-attack of the opponents, which caused a larger number of penalty kicks and the success of the winning teams in taking them over. In general, it can be concluded in the dynamics of the game, that the dynamics was on the side of the winning team that won the final and showed better results.

CONCLUSION

Based on the basic goal of this research and based on the obtained results, it can be concluded that there are statistically significant differences of 0.000 in the variables that were tested. The weakest difference is in the performance of penalties and counterattacks, which leads to the conclusion that the competitors are weaker in the accuracy of the shot and the approximate swimming speed. All this says that attention must be paid to the development of precision and swimming speed, all of which can confirm the weaker difference between the variables sprint for the ball and goal from a foul. It is obvious that the players did not use the 6 on 5 situations, which leads us to the conclusion that they did not work enough on perfecting this tactic. So more has to be dedicated to perfecti the tactics of the 6 on 5, this can be confirmed with the variable goals from the anchor. It can be concluded that the results, even if they are quite similar, there was a small statistically significant difference, which shows that all teams are of approximate qualities when it comes to motor skills, techniques and tactics. It is recommended to make a more efficient plan and program to improve these skills as well as to train coaches for this Olympic sport.

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