M18 W18 BEACH HANDBALL EUROS CHAMPIONSHIP ANALYSIS
ULCINJ 2018

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ABSTRACT

Beach handball is a sport that has acquired a great global recognition and, as an example, it is already participating in the Youth Olympic Games. The aim of this study was to make a quantitative and qualitative analysis of the European Championships of national teams held in Ulcinj between June 29 to July 1, 2017. To carry out this analysis, a comparison of different specific beach handball skills of this championship was made. To do this, the volunteers trained to collect data gathered information from 112 matches in situ. The data were statistically analyzed and the results were presented. Among the most interesting conclusions were: 1-point shots have increased considerably; throws with the lowest percentage of effectiveness are the goalkeeper's; the inflight shot is the throw with the highest percentage of effectiveness; there are no differences between men and women when the percentage of goals is compared regarding the throw type.

KEYWORDS: quantitative, qualitative, comparison, competition, sand.

INTRODUCTION

This analysis is being carried out at the same time as the Youth Olympic Games are taking place in Buenos Aires, Argentina. This is a success for beach handball since it could be considered the first step for this sport to reach the Olympic dream.

The participation of beach handball in the Youth Olympic Games is already a reality and this has given a boost to beach handball, especially in the youth categories. A quantitative proof is that, in this competition, the record of participation of national teams was broken, with a total of 34 national teams taking part. Regarding the number of participating countries, the record was also broken in the youth categories, with a total of 18 participating countries.

In the previous beach handball EUROS analysis (Zapardiel, 2018) we highlighted "that the overall speed of the game has increased and that the technical quality of all the players continues to grow to a great extent. The younger ones are a clear example of this". In this championship, technique has improved primarily in teams with less experience in beach handball.

The European championships of youth national teams started in Nagyatad in 2008 and, since then, three M19 W19 Beach Handball EUROs were organized (Umag, Croatia, 2011; Randers, Denmark, 2013; and Lloret de Mar, Spain, 2015); four M18 W18 Beach Handball EUROs, included this last one, (Nagyatad, Hungary, 2008; Batumi, Georgia, 2012; Lorca, Spain, 2014; and Ulcinj, Montenegro, 2018); one M17 W17 Beach Handball EUROs (Zagreb, Croatia, 2017), and one M16 W16 Beach Handball EUROs (Nazareth, Portugal, 2016).

The analysis of European beach handball championships (Tezcan, 2013a) (Tezcan, 2013) (Zapardiel, 2018) showed ratings on anthropometric data, average points per game, throw types, offensive and defensive structures, percentages of throws effectiveness and percentages of goalkeeper saves. We will continue with this type of analysis and we will also include a more qualitative analysis of offensive and defensive game systems.

After the above discussion, we aim to make a quantitative assessment and, to the extent possible, qualitative, of all the collected data during all the matches of the M18 W18 Beach Handball EUROs in Ulcinj 2018.

Figure 1. Extracted from www.eurohandball.com

METHOD

Data collection for the quantitative analysis was carried out in situ by volunteers selected for this purpose. These volunteers received training a week before the start of the championship. This training was given by European Handball Federation staff. In each match, the volunteers were accompanied by an EHF Delegate who narrated the different actions that were being carried out.

All collected data were transferred to a spreadsheet to be treated with the SPSS v.22 software afterwards. The normality of the dependent variables was checked by the asymmetry and kurtosis tests, resulting in normal variables. The contrasts of mean differences between gender and category variables were studied by means of multivariate analysis of covariance. When the variables did not show significant differences and their degree of association was close to zero, they were studied as a single group. The rest of the variables were studied as independent groups. Subsequently, a descriptive and inferential analysis among the variables of the study was carried out. In the inferential analysis, when the variance homogeneity test showed significance, the Welch test was used; when it did not show significance, the ANOVA test was used.

RESULTS

Descriptive analysis

The M18 W18 Beach Handball EUROs Championship were organized in Ulcinj, Montenegro, in 2018. The championship was organized between June 29 and July 1. In both categories, 17 teams were registered. Three hundred sixty-one players from 18 countries participated. Table 1 shows the means of the basic anthropometric data of the players.

Table 1. Anthropometric data players

Category	Height			Weight		
	Maximum	Minimum	Average (SD)	Maximum	Minimum	Average (SD)
W18	190,0 cm	157,0 cm	174,3 (±6,1) cm	91,0 kg	50,0 kg	64,6 (±7,1) kg
M18	205,0 cm	155,0 cm	186,1 (±7,8) cm	107,0 kg	58,0 kg	79,3 (±9,1) kg

A total of 112 matches were played in four fields: 56 in each of the categories. The ranking of all the categories can be seen in Figure 2.

Figure 2. Rankings of all categories (extracted from www.eurohandball.com)

During the 112 matches played, we reach a total of 6.289 shots, out of which 3.936 goals were scored (62.5% of effectiveness), 416 were 1-point goals, 1.888 goals were spin shots, 487 goals were inflight shots, 760 goals were specialist shot, 50 goals were goalkeeper shots and 335 goals from 6-metre throw. There were 285 suspensions, 24 disqualifications by accumulation and 15 direct disqualifications. A total of 5.366 shots were received by the goalkeepers, saving 899, which leads to a total percentage of saves of 26.5%. It must be borne in mind that saves are also included in the direct blocks and the blocks of the counter-spin.
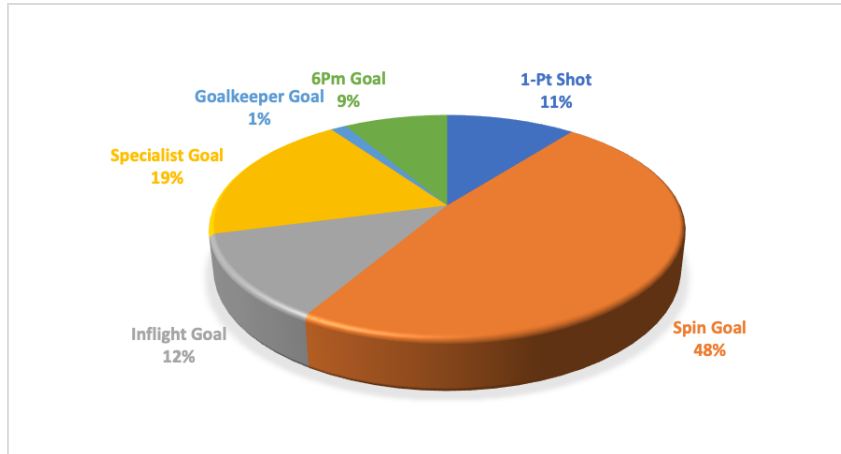
Figure 3. Goals percentage according to shot type of all categories

In male category, we had a total of 3.292 shots in 56 matches, of which 2.100 goals were scored (63.6% of effectiveness), 201 were 1-point goals, 1.010 goals were spin shots, 289 goals were inflight shots, 405 goals were specialist shot, 24 goals were goalkeeper shots and 171 goals from 6-metre throw. There were 154 suspensions, 18 disqualifications by accumulation and 5 direct disqualifications. A total of 2.877 shots were received by the goalkeepers, saving 454, which leads to a total percentage of saves of 26.7%.

Figure 4. Goals percentage according to shot type male category

As for the female category, we had a total of 2.996 shots in 56 matches, of which 1.836 goals were scored (61.4% of effectiveness), 215 were 1-point goals, 878 goals were spin shots, 198 goals were inflight shots, 354 goals were specialist shot, 26 goals were goalkeeper shots and 164 goals from 6-metre throw. There were 131 suspensions, 6 disqualifications by accumulation and 10 direct disqualifications. A total of 2.488 shots were received by the goalkeepers, saving 445, which leads to a total percentage of saves of 26.2%.
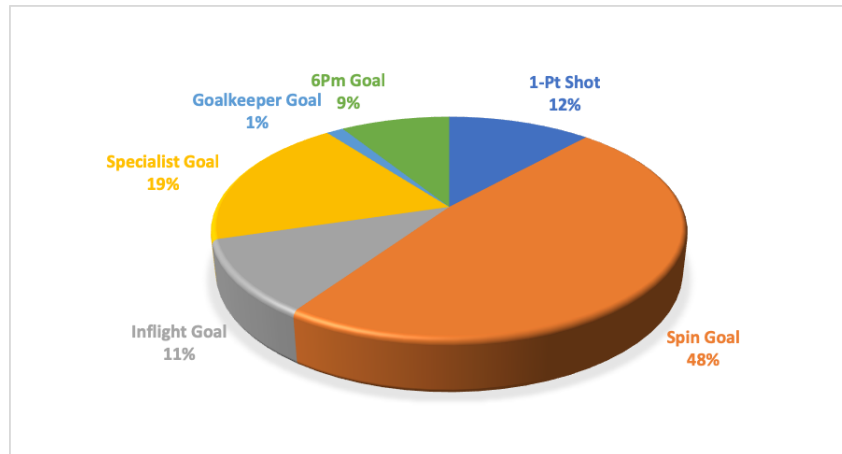

Figure 5. Goals percentage according to shot type female category

Inferential analysis

No significant differences were found between men and women when the number of goals was compared according to shot type.

Table 2. Goal average per team according to shot type and inferential analysis between men and women

	Gender	N	Average	DS	p
1-Pt Goal	Male	17	11,871	9,3198	,833
	Female	17	12,647	11,8054	,833
Spin Goal	Male	17	59,400	20,2633	,263
	Female	17	51,647	19,3970	,263
Inflight Goal	Male	17	17,000	7,8740	,170
	Female	16	12,375	10,9049	,176
Specialist Goal	Male	17	23,871	4,9481	,145
	Female	17	20,824	6,8029	,146
Goalkeeper Goal	Male	15	1,587	1,3928	,593
	Female	14	1,929	1,9793	,598
6Pm Goal	Male	17	10,071	3,2301	,743
	Female	17	9,647	4,1824	,743

When the effectiveness between men and women was compared according shot type (Table 3), significant differences were only found in the 6-meter throws (*p*=.023).

Table 3. Effectiveness average according to shot type and inferential analysis between men and women

	Gender	N	Average	DS	p
1-Pt %	Male	17	80,781	14,6069	,194
	Female	17	73,677	16,5503	,194
Spin %	Male	17	59,353	8,3034	,389
	Female	17	56,076	13,0462	,390
Inflight %	Male	17	64,927	11,2749	,670
	Female	16	67,060	16,8384	,675
Specialist %	Male	17	63,001	10,3748	,491
	Female	17	60,321	12,0175	,492
Goalkeeper %	Male	15	46,964	36,6572	,869
	Female	14	49,087	31,6900	,869
6Pm %	Male	17	79,539	10,1118	,023
	Female	17	70,144	12,7081	,023

When we compared the teams according to the ranking, we did not find significant differences in the variables effectiveness percentage inflight shots (p = .810), effectiveness percentage specialist shot (p = .353), effectiveness percentage goalkeeper shot (p =. 197), effectiveness percentage 6-metre shot (p = .307), number of spin shots received (p = .609), number of inflight shots received (p = .097), number of goalkeeper shots received (p = .109) or number of 6-metre shots received (p = .112). We found statistical differences in the total effectiveness percentage of all throw types (p = .017), effectiveness percentage spin shots (p> .001), percentage saves (p = .015) and number of throws received by the specialist player (p = .014).
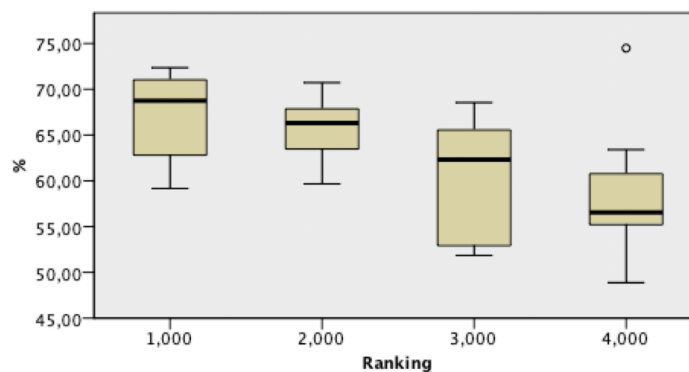

Figure 6. Box plot about the total effectiveness percentage of all throw types of according to ranking
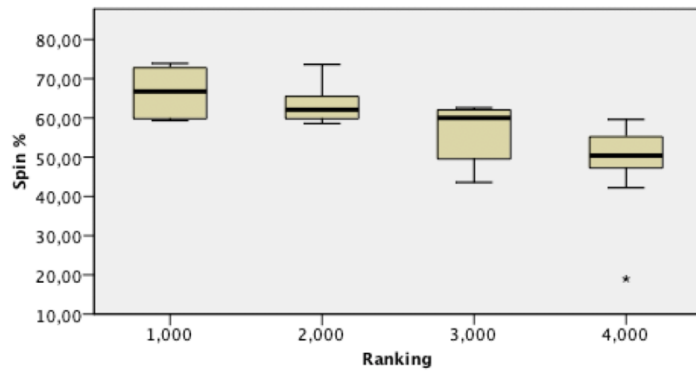
Figure 7. Box plot about the effectiveness percentage spin shot according to ranking
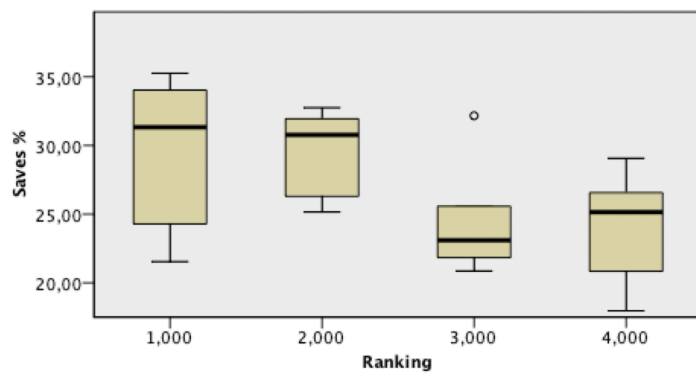

Figure 8. Box plot about the effectiveness percentage save according to ranking
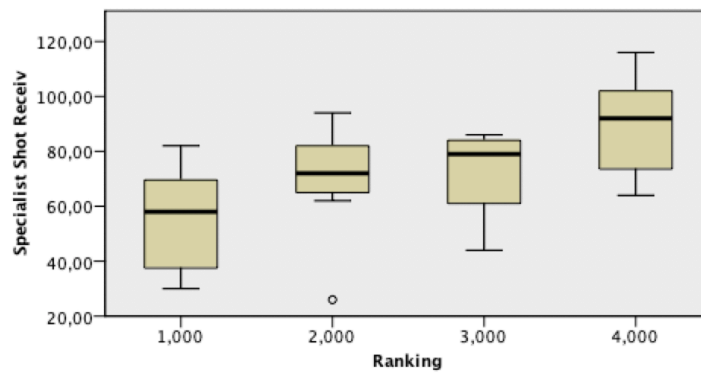

Figure 9. Box plot about the specialist shot received according to ranking

With the same structure of analysis, that is to say, ranking, we did not find significant differences in any of the following variables: technical foul (p = .190), suspension (p = .885), disqualification (p = .171).
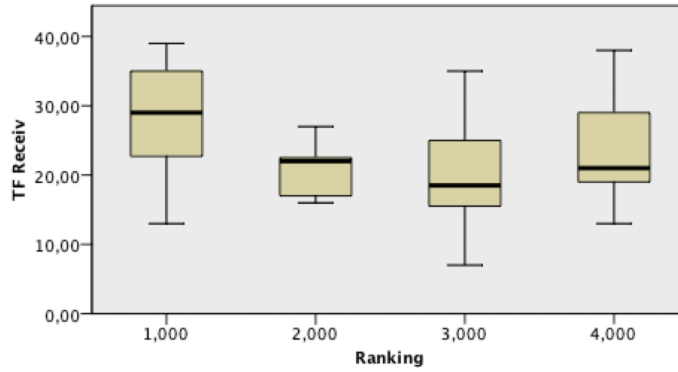

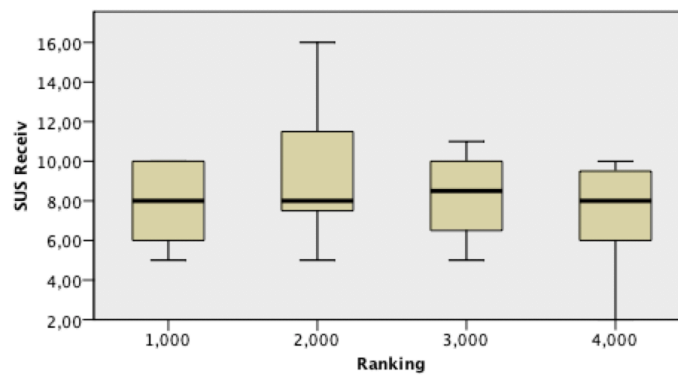Figure 10. Box plot about the specialist technical foul
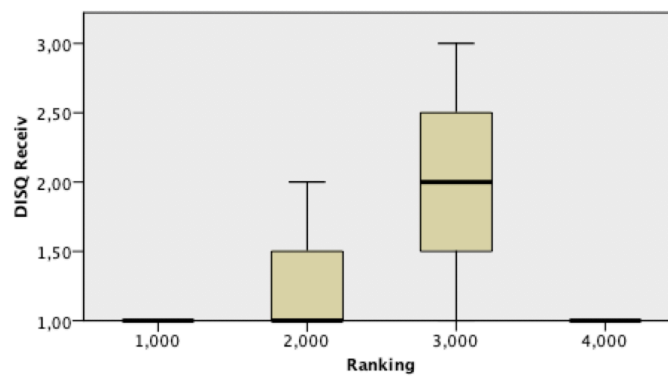

Figure 11. Box plot about the suspensions

Figure 12. Box plot about the disqualification

DISCUSSION

First, we will begin the discussion by analyzing the descriptive data of the championship. Then, we will continue with the assessment of the inferential analysis. Finally, and we will carry out a very brief observational analysis. It must be emphasized that this observational analysis does not meet the scientific requirements of this type of methodology.

The average size of the beach handball players in the Zagreb European Championship (Zapardiel, 2018) was higher than the average size from previous researches (Tezcan, 2011a; Tezcan, 2013). In this championship, the average size has decreased by 2 cm in women and by 5 cm in men, reaching 174.3 cm in women and 186.1 in men. Regarding weight, values are the same in women when compared with previous championship data (Zapardiel, 2018) and an average decrease of 7 kg can be observed in men.

Figure 13. Extracted from www.eurohandball.com

During this M18 W18 Beach Handball EUROs Championship, there were no differences between men and women when the percentage of each shot type used was compared. The use of the spin shot is consolidated over the rest of the throws. It has stabilized in 50% and the maximum percentage of the rest of throws is found in the specialist with 19%. The fact that the goalkeeper shot is hardly used is a very attractive situation (1%). The values are very similar to those from the previous European Championship (Zapardiel, 2018) and we miss championships where the in-flight shot or the goalkeeper shot had much higher percentages (Gehrer, Trespidi, & Bebetsos, 2006; Gehrer & Trespidi, 2007; Guerrero & Van Linder, 2002; Guerrero & Van Linder, 2004; Kuburovic, 2009; Tezcan, 2011; Tezcan, 2011b; Tezcan, 2013; Tezcan, 2013b). In our opinion, losing the goalkeeper shot option is a negative aspect for beach handball from a strategic point of view. We are not talking about throwing or not; we are talking about not even trying, and this allows teams to make the changes and defensive withdrawal as normal. The increase of the percentage of 1-point shot (11%) should be pointed out. Some teams use it much, for instance, the female champion team, Hungary, carried out 44 1-point shot. This should be taken into account by coaches, but is beach handball a more spectacular sport this way?

The percentage of saves has decreased when this Championship is compared with that in Zagreb (Zapardiel, 2018) . Men had an average percentage of saves of 26.7%, and women of 26.2%. In Zagreb, the average percentage of saves was 30.2% and 32.5% respectively (four and six percentage points respectively). Is the technical capacity of players improving? We will have to continue studying this skill.

Other data analyzed in this study have been *effectiveness of total throw* and *effectiveness depending on the throw type*. The overall effectiveness of the men's and women´s category in this championship is similar to the values reached in Zagreb (Zapardiel, 2018). The most effective throws are 1-point shots, followed by inflight shots. The next most effective throws are specialist shots, followed by spin shots, with very similar values to specialist shots. The spin shot, despite being the most used throw, is one of the throws with the lowest percentage of effectiveness. The least effective throws are goalkeeper shots. All these percentages and trends of throws remain stable in relation to the analysis from previous championships (Tezcan, 2011; Tezcan, 2011; Tezcan, 2013; Tezcan, 2013; Zapardiel, 2018) . The most effective 2-point throw is the inflight shot. In any case, for a more objective analysis, an assessment of missed passes for inflight shots should be made.

Figure 14. Extracted from www.eurohandball.com

When performing the analysis of the best teams, we found that the differences in the ranking are defined by the variables total effectiveness, effectiveness in spin shots, percentage of goalkeepers saves and the lowest number of throws received by the opposing team. In Zagreb (Zapardiel, 2018), there were no differences in this sense but these variables showed the same tendencies.

In addition, scouting has shown a considerable advance. There are more and more teams everyday that spy on opposing teams and plan their matches after receiving the report from the technical scouting. We observe not only where a player throws more frequently or where the goalkeeper saves more goals, but in this championship we have also seen how defenders

have received information about how their opponents carry out spin shots or inflight shots. Scouting is best performed in shoot outs. Coaches' strategies regarding handball throwers are extremely frequent actions in this championship.

By focusing the analysis on observational aspects, it was possible to verify that the teams occupying the top positions in the ranking were the teams that offered the most group tactical resources. Of course, the technical-tactical capabilities mark the differences between the teams, but the best teams were the teams with more strategic resources. Another strategic resource that stood out from the best teams was the quick adaptations to the changes of rival strategies. Also, a great advance of scouting has been noticed in this field. More and more teams are joining the monitoring of their rivals, increasing the number of matches where coaches receive the report from the technical scouting. It is no longer only observed where a player most often throws or how are the goalkeeper saves, in this championship it has also been possible to appreciate how the defenders have received information about how the spin shots or the inflight shot is carried out by their opponents. Where you can most appreciate scouting is in the shoot out. The strategies of the coaches depending on the throwers is one of the most repeated actions in this championship.

The most used offensive structure is still 3:1 although the number of teams using 4:0 and other systems is increasing. In some cases, the best ranked teams started the attack with 3:1 and transformed the system to 4:0. In the same way, the opposite transformation was possible, from 4:0 to 3:1. The position of the most usual specialist is still that of the center although there are teams, such as male Poland, that played with the specialist in the substitution zone and with 3: 1. Some teams varied their system depending on the dominant hand of their pivot. The teams with right and left-handed pivots varied in each set depending on the side of substitution. In all cases, there were fixations in the side of changes taking advantage of the strong point of the pivot to finish in the opposite zone.

The defensive structures are maintained. 3:0 is still the most frequent system, followed by 2:1. It was observed that quite a few teams varied their defensive depth depending on the opponent and his game strategy. The number of teams in which the wings are not going to make the counter-spin and the central defender does it instead increased. Prior to the counter-spin, the wings have tried to close the throw space as much as possible.

In the fast break, the goalkeeper's direct shots almost disappeared. This may be due to what the descriptive analysis shows, the success percentage does not exceed 50%. It was also observed how some teams continue to take advantage of the fast break in the first wave with two changes. The number of national teams that make the fast break in the second wave is lower. In this case, this is carried out by placing the pivot or keeping the four players in line.

Regarding goalkeepers, it has been observed that most of their interventions start from positions advanced in relation to the goal line.

From the technical point of view, players who make the offensive approaches with the ball using jumps with both feet at the same level have increased remarkably. The technical variants that can be seen are increasingly creative. Although the percentage of success of the spin shot remains, if we have seen variations in the position of the body during the throw and also, the form of completion. The versatility of the players becomes an almost essential fact in the teams that want to opt for the medals.

It is a notable fact that most teams carry out individual defense when the opposing team has had a suspension although, in most cases, the result is not positive.

During the shoot out, the number of teams where the goalkeeper makes the passes from the area opposite to which the thrower has been placed increases. In Figure 15, it can be seen how the goalkeeper receives the ball out of the goal area and far from his teammate, and he passes the ball just from the opposite corner of their area. This makes the action from the opposing goalkeeper more difficult when he leaves his area.

Figure 15. Capture from Eurohandball TV

To conclude, we would like to point out that in the previous analysis (Zapardiel, 2018) we commented that many 1-point shots were missed. This has completely changed during this championship and has increased the effectiveness remarkably in both genders.

CONCLUSIONS

The number of 1-point shots has considerably increased in the M18 W18 Beach Handball EUROs Championship held in Ulcinj, especially in the female category.

The throws with the lowest percentage of effectiveness are goalkeeper shots, followed by spin shots.

The inflight shot is the throw with the highest percentage of effectiveness.

There are no differences between men and women when the percentage of goals is compared by throw type. There are also no differences when comparing the effectiveness by throw type except for the 6-meter throws. Men are more effective in 6-meter throws.

Teams that occupied the first positions in the final ranking were the ones that had more variety of tactical procedures and more capacity of adaptation offered to the proposals of the rival teams.

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THANKS

To all the volunteers and EHF delegates in the Ulcinj European Beach Handball Championships 2018.

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