

Original Article

Shot effectiveness by playing position with regard to goalkeeper's efficiency in team handball

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Abstract:

Game analysis in team handball enables the evaluation of basic individual and team characteristics and helps the coaching team intervene and reinforce the training plan. The aim of the present study was to examine and compare the efficiency of shots by playing position in relation with the efficiency of the goalkeeper during defense. Overall, 44 games were analyzed and the variables were the following: posts-out, goals and goalkeeper saves. 1783 shots were executed in total with an average of 40.49 shots per game. 65.6% of the shots were performed by backcourt players from a distance of nine-meters or more with an average effectiveness of 38–40%. The overall goalkeepers' effectiveness was found to be 45.84%. Shots from the wing and the nine-meter area contributed the most to the teams' overall scores. Kruskal–Wallis analysis revealed significant differences between the shots performed from different playing positions regarding the goalkeeper saves ($H=98.06$, $p<.001$), posts-out ($H=57.86$, $p<.001$) and goals achieved ($H=111.49$, $p<.001$). The defense tactic on the six-meter line forced the backcourt players to execute many more attempts behind the nine-meter area and also to cooperate in an excellent manner with the line player. This situation is a basic characteristic in modern handball.

Key words: Game analysis; performance; defence; tactic; save-block.

Introduction

The analysis of the game and player's actions is a research area which plays an important role in the notational analysis of a game. This kind of analysis enables players to get feedback in trainings and games (Taylor *et al.*, 2004). In order to better understand and interpret the result of a game, one needs to focus on a type of analysis that allows insight into the relations among the factors leading to victory (Volossovitch, 2005). Thus, game analysis provides the ability to evaluate the basic individual and team characteristics and helps the coaching team intervene and reinforce the training plan (Meletakos *et al.*, 2011; Ferrari *et al.*, 2014). The number of attacks and shot efficiency reveals the overall attack resultant and shows the defensive qualities of the opponent. An older study on the tactics of the teams that participated in the 10th Junior World Championship for Women (1995) reported that the average attacking effectiveness reached the level of 60% (Taborsky, 1996). The aim of the work of García *et al.* (2008) was to analyze the under 16 Junior Spanish Handball Championship focusing on identifying the game related statistics that distinguish the winning from the losing team. It has been performed on a sample of 52 games and the results have suggested that the best teams have a better performance in attack and defense and specifically the best teams used the counter-attack more often and better. The counter-attack shots, counter-attack goals, six-meter goals and assists foreshadow the victory.

Pokrajac (2010) reported that there is a trend in the handball game to be faster, more interesting and with more attractive attacks which means very often a larger number of goals than before. The number of goals becomes a crucial quality criterion and is a staple of the modern game. The same author concluded that there are many arguments in favor of saying that naturally "the winner in a game will be the team which scored the greatest number of goals" or "the team which concedes the least number of goals". The final conclusion is that for a positive result it is necessary for a team to have first and foremost good defense. The study of Ohnjec *et al.* (2008) focused on the contribution of standard situational parameters to the criterion outcomes of handball games defined as the goal-difference in the game's final score during the 2003 World Championship for women. The winning teams had an average of 3.55 shots more than the losing teams with superiority in shot efficiency (61.31% vs 43.33%). During the preliminary round of competition of the 2003 Men's World Championship both the winning and losing teams had the same average number of shots but with different scoring efficiency,

62.25% vs 44.3%, respectively (Gruic *et al.*, 2006). Other studies tried to define and analyze the influential performance factors of elite handball players by taking into consideration shot effectiveness with regard to playing position, technical faults gained seven-meter throws, assists, goalkeepers' effectiveness, number of attacks (Gruic *et al.*, 2006; Ohnjec *et al.*, 2008; Meletakos *et al.*, 2011; Bilge, 2012).

On the other hand, Hergeirsson (2008) reported that in recent years in many major tournaments and competitions, such as European Championships and Olympic Games, the number of attacks per game on average is the same but, at the same time, there is a trend that most of the teams have decreasing efficiency. This is obvious when we look at goals scored per game. This decrease in efficiency (scored goals) should be seen most of the times in the light of the organized defense and of course the goalkeeper's performance.

Defense in team handball is a very complex issue. The goalkeeper has the most special position among all the players and has an important role for team performance (Dumitru, 2010). The goalkeeper is the last defender and the first offensive player and therefore is among the most crucial factors of the game and has an important role for the efficiency of the defense and the counterattack (Czerwinski, 1997). According to experts, the efficiency of a good goalkeeper must be more than 35% (Arvidsson *et al.*, 2003) and he can affect the final score of a game in 50%. Setting aside the anthropometric and physical fitness characteristics such as agility, explosive power and reaction time, an excellent play is accomplished through the technical and tactical execution. Moreover, goalkeepers' performance in general can be affected by the skilled perception and clearly by the quality of team defense (Justin *et al.*, 2013). Goalkeeper efficiency is a relevant variable for explaining the team performance: the higher the goalkeeper efficiency, the better the classification of teams. Moreover, top teams have better goalkeeper efficiency than the rest of the teams (Fuentes *et al.*, 2010). In a longitudinal study that examined the goalkeepers' performance and development during the last eight Olympic Games (1982-2012) it was found that for thirty years overall, goalkeepers' effectiveness along with overall individual actions, although varied, did not differ importantly. So, there was no evidence of an increase or decrease of the goalkeepers' effectiveness or any alteration of the goalkeepers' standards and moves (Espina-Agulló, 2016).

It is obvious that the shot efficiency of the players depends on the goalkeeper's efficiency during defense. Therefore, there is a relation between the goalkeeper's efficiency and the shot efficiency of the player during defense. The aim of the present study was to examine and compare the efficiency of shots by playing position in relation with the efficiency of the goalkeeper during defense.

Method

The sample of the study was derived from the premier league of Greece for the seasons 2013-2014 and 2014-2015. The preferred method of reporting was video-analysis. Overall, 44 games were analyzed and the variables were the following: posts-out, goals, saves for goalkeeper who participated in each game. The above three variables which were studied for several offensive player positions within the playing field were taken into account. The SPSS 22 statistical program was utilized for the analysis of the results and the method applied was descriptive and inferential statistic. The Kruskal-Wallis test was used to compare the differences between six playing positions (left wing, left backcourt player, center, right backcourt player, right wing and line player) as regards to posts-out, goals and saves. Furthermore, the Mann-Whitney U test was used to compare differences between pairs by playing position for the aforementioned variables.

Results

The descriptive statistics of players' shots and the overall goalkeepers' effectiveness are presented in Table 1.

Table 1. Descriptive statistics for player shots and goalkeepers' effectiveness

Position	Shots Total	Shot/ game	Goals Total	Goals/ game	Players Efficiency	Missed shots	Missed shots (post-out)	Missed shots (GK save)	GK Efficiency
LW	181	4.11	101.5	2.3	56.1	79.5	44.6	34.9	43.9
LB	350	7.9	177.6	4.0	50.7	172.4	87.5	84.0	49.3
CB	644	14.63	313.9	7.1	48.7	330.1	160.8	169.3	51.3
RB	282	6.4	146.2	3.3	51.8	135.8	70.4	65.4	48.7
RW	169	3.8	96.7	2.2	57.2	72.3	41.4	30.9	42.8
LP	157	3.7	94.7	2.1	60.3	62.3	37.6	24.7	39.7
Total	1783	40.5	930.6	21.1	54.1	852.4	442.2	410.2	45.8

Note. LW: Left wing; LB: Left back; CB: Center back; RB: Right back; RW: Right wing; LP: Line player; GK: Goalkeeper.

Descriptive statistics of the individual shots in relation to fast break (FB), penalty throw from seven-meter (7m), break-through (BT), nine-meter area (9m), six-meter line player's area (6m) and wing position (WP) are presented in Tables 2 to 6.

Table 2. Descriptive statistics for player shots and goalkeepers' effectiveness in fast break

Position	Shots Total	Shot / game	Goals Total	Goals / game	Players Efficiency	Missed shots	Missed shots (post-out)	Missed shots (GK save)	GK Efficiency
LW	43.4	1.0	30.6	0.7	70.5	12.8	9.0	3.8	29.5
LB	42.0	0.9	31.2	0.7	74.3	10.8	8.0	2.8	25.7
CB	68.7	1.6	49.8	1.1	72.5	18.9	13.7	5.2	27.5
RB	38.0	0.7	27.2	0.6	71.6	10.8	7.7	3.1	28.4
RW	37.3	0.8	27.6	0.6	74.0	9.7	7.2	2.5	26.0
LP	18.6	0.4	13.0	0.3	69.9	5.6	3.9	1.7	30.1
Total	248.0	5.6	179.4	4.1	72.3	68.6	49.6	19.0	27.7

Note. LW: Left wing; LB: Left back; CB: Center back; RB: Right back; RW: Right wing; LP: Line player; GK: Goalkeeper.

Table 3. Descriptive statistics for player shots and goalkeepers' effectiveness in seven-meter.

Position	Shots Total	Shot / game	Goals Total	Goals / game	Players Efficiency	Missed shots	Missed shots (post-out)	Missed shots (GK save)	GK Efficiency
LW	20.6	0.5	14.5	0.33	70.7	6.0	4.3	1.7	29.3
LB	21.4	0.5	15.2	0.35	71.1	6.2	4.4	1.8	28.9
CB	23.5	0.5	16.8	0.38	71.5	6.7	4.8	1.9	28.5
RB	19.9	0.4	14.5	0.33	72.9	5.4	3.9	1.5	27.1
RW	15.4	0.3	10.9	0.25	70.5	4.6	3.2	1.3	29.5
LP	19.0	0.4	13.3	0.30	70.0	5.7	4.0	1.7	29.9
Total	119.8	2.7	85.3	1.94	71.1	34.6	24.6	9.9	28.8

Note. LW: Left wing; LB: Left back; CB: Center back; RB: Right back; RW: Right wing; LP: Line player; GK: Goalkeeper.

Table 4. Descriptive statistics for player shots and goalkeepers' effectiveness in break through

Position	Shots Total	Shot / game	Goals Total	Goals / game	Players Efficiency	Missed shots	Missed shots (post-out)	Missed shots (GK save)	GK Efficiency
LW	26.0	0.6	19.5	0.4	75.0	6.5	4.9	1.6	25.0
LB	58.9	1.3	43.1	1.0	73.1	15.8	11.6	4.2	26.9
CB	72.6	1.6	54.1	1.2	74.5	18.5	13.8	4.7	25.4
RB	48.5	1.1	35.6	0.8	73.4	12.9	9.5	3.4	26.6
RW	30.0	0.7	22.6	0.5	75.5	7.3	5.5	1.8	24.5
LP	2.0	0.0	2.0	0.0	100	0.0	0.0	0.0	0.0
Total	238.0	5.4	176.9	4.0	78.6	61.1	45.4	15.7	21.4

Note. LW: Left wing; LB: Left back; CB: Center back; RB: Right back; RW: Right wing; LP: Line player; GK: Goalkeeper.

Table 5. Descriptive statistics for player shots and goalkeepers' effectiveness of the nine-meter area

Position	Shots Total	Shot / game	Goals Total	Goals / game	Players Efficiency	Missed shots	Missed shots (post-out)	Missed shots (GK save)	GK Efficiency
LW	11.0	0.2	4.5	0.1	41.2	6.5	2.7	3.8	58.8
LB	210.7	4.7	81.7	1.8	38.8	129.0	50.0	79.0	61.2
CB	466.2	10.6	188.4	4.3	40.4	277.8	112.3	165.5	59.6
RB	160.6	3.6	63.1	1.4	39.3	97.51	38.4	59.1	60.7
RW	8.0	0.2	3.3	0.1	41.6	4.7	2.0	2.7	58.4
Total	856.5	19.4	341.0	7.7	40.2	515.5	205.4	310.1	59.7

Note. LW: Left wing; LB: Left back; CB: Center back; RB: Right back; RW: Right wing; LP: Line player; GK: Goalkeeper.

Table 6. Descriptive statistics for player shots and goalkeepers' effectiveness of the wing positions

Position	Shots Total	Shot / game	Goals Total	Goals / game	Players Efficiency	Missed shots	Missed shots (post-out)	Missed shots (GK save)	GK Efficiency
LW	80.0	1.8	32.4	0.7	40.4	47.7	19.3	28.4	59.6
LB	17.0	0.4	6.4	0.1	37.8	10.6	4.0	6.6	62.2
CB	13.0	0.3	4.8	0.1	36.8	8.2	3.0	5.2	63.2
RB	15.0	0.3	5.8	0.1	38.7	9.2	3.6	5.6	61.3
RW	78.2	1.8	32.3	0.7	41.2	46.0	19.0	27.0	58.8
LP	2.0	0.0	1.0	0.0	50.0	1.0	0.5	0.5	50.0
Total	205.3	4.6	82.6	1.8	40.8	122.6	49.4	73.3	59.1

Note. LW: Left wing; LB: Left back; CB: Center back; RB: Right back; RW: Right wing; LP: Line player; GK: Goalkeeper.

The line player had 115.4 total shots and more specifically 2.6 shots per game. He had 65.4 total goals and 1.5 goals per game. His efficiency was 56.7% which means the goalkeeper's efficiency was 43.3%. The line player missed 50 shots. He had 28.3 missed shots (post-out) and 21.6 missed shots (goalkeepers save).

A number of 1783 shots were executed in total during 44 games with an average of 40.49 shots per game. Most of them were performed from the center back position (CB) and secondly from the left and right back positions (LB and RB). The least shots were attempted from the wing positions and the line players' area (Table 1). The overall goalkeepers' effectiveness was found to be 45.84%. Goalkeepers' effectiveness to the shots from the wings and the 9m area contributed the most to their overall scores (Tables 5, 6). Kruskal-Wallis analysis revealed significant differences between the shots performed from different playing positions regarding the variables saves ($H=98.06$, $p<.001$), posts-out ($H= 57.86$, $p<.001$) and goals achieved ($H=111.49$, $p <.001$). Table 7 represents the mean standard deviation and mean rank of the shots according the individual playing positions.

Table 7. Mean (sd) and mean rank of shots according to player position.

	Left wing		Left backcourt		Center		Right backcourt		Right wing		Line player	
	M (sd)	Mean Rank	M (sd)	Mean Rank	M (sd)	Mean Rank	M (sd)	Mean Rank	M (sd)	Mean Rank	M (sd)	Mean Rank
Out/ Post	0.6 (0.7)	99.0	1.2 (1.1)	127.4	2.6 (1.9)	178.1	1.1 (1.4)	126.4	0.6 (0.9)	107.7	0.3 (0.6)	76.5
Goal	2.9 (1.3)	110.8	3.2 (1.7)	139.4	7.8 (3.4)	206.0	2.5 (1.6)	113.4	2.0 (1.2)	97.2	2.1 (1.4)	101.1
Save	1.7 (0.9)	98.8	3.2 (1.9)	150.2	6.5 (3.4)	193.7	2.4 (1.8)	115.8	1.5 (1.0)	93.4	1.2 (1.0)	66.1

The Mann-Whitney test and P values for the comparisons and differences between playing positions as regards to shots efficiency are presented at Table 8.

Table 8. Mann-Whitney U test and (p) values for the comparisons and the differences between playing positions with respect to the efficiency of shots.

	Outside of the post / posts	Goal	Save
LW vs LB	-2.38 ^b (0.01)	-4.08 ^b (0.00)	-4.32 ^b (0.00)
LWvsCB	-5.02 ^b (0.00)	-5.78 ^b (0.00)	-5.62 ^b (0.00)
LWvsRB	-2.59 ^b (0.00)	-3.18 ^b (0.00)	-2.29 ^b (0.02)
LWvs RW	-0.56 ^c (ns)	-0.39 ^c (ns)	-0.42 ^c (ns)
LWvs LP	-1.67 ^c (ns)	-0.15 ^b (ns)	-2.66 ^c (0.00)
LBvsCB	-4.00 ^b (0.00)	-5.16 ^b (0.00)	-4.55 ^b (0.00)
LBvs RB	-0.19 ^c (ns)	-2.03 ^c (0.04)	-1.89 ^c (ns)
LBvs RW	-2.18 ^c (0.02)	-4.38 ^c (0.00)	-4.33 ^c (0.00)
LB vs LP	-3.56 ^c (0.00)	-2.85 ^c (0.00)	-5.01 ^c (0.00)
CB vs RB	-3.46 ^c (0.00)	-5.37 ^c (0.00)	-4.77 ^c (0.00)
CB vs RW	-4.63 ^c (0.00)	-5.72 ^c (0.00)	-5.38 ^c (0.00)

CB vs LP	-5.09 ^c (0.00)	-5.55 ^c (0.00)	-5.58 ^c (0.00)
RBvs RW	-2.27 ^c (0.02)	-3.30 ^c (0.00)	-3.05 ^c (0.00)
RBvs LP	-3.46 ^c (0.00)	-1.43 ^c (ns)	-3.19 ^c (0.00)
RW vs LP	-1.94 ^c (0.05)	-0.33 ^b (ns)	-2.09 ^c (0.00)

Note. *b* exponent: negative classification; *c* exponent: positive classification.

Mann-Whitney U sign and its exponent on Table 8 reveal that left and right wing (LW, RW) positions do not significantly differ from each other, but significantly underscore in relation to back players' positions to all shots variables. LW playing position surpasses the line players' position, LP scores only in the "saves" variable. RW position outmatches LP scores in the "outside of the post/post" and "saves" variables.

LB and RB positions scores differ significantly in all shots involving variables when compared to the rest of the playing positions. Mann-Whitney U sign and its exponent reveal underscoring of the LB and RB playing positions compared to the CB playing position in all shot variables. Interestingly, LB and RB positions' scores came up higher in all significant differences that occurred with the rest of the playing positions. The LB when compared to the RB differed significantly only on the "goals achieved" variable while RB differed significantly in all other variables (Table 8). As for the CB, it was found that it scored significantly higher in all shots variables (outside of the post/ posts, goals, saves) with regard to the other playing positions.

Finally, LP position scores are lower than the other two back playing positions in all variables. Furthermore, LP position significantly differs from RW in the variables "outside of the post/ post" and "saves", while no significant differences were found in the variable "goals achieved". From Mann-Whitney U sign and its exponent, it was noted that LP correlating to RW, significantly underscored in the variables "outside of the post/ post" and "Saves".

Discussions

Performance in team handball is an after effect of a complex combination of several skills and mental, physiological, technical and tactical challenges. These skills lead to a variety of complex actions that provide solutions to the problems that arise and need to be addressed within the time margins of the game. Therefore, the analysis of the factors involved in the athletic performance during a game is essential. The present study examined shot efficiency in relation to playing position that corresponds to a certain throwing sector and to the goalkeepers' effectiveness. The participants of the study were handball players of the Greek championship (First League).

The shot (40.49) and goal (21.12) average per game found in the present study was lower respectively in the reports from the men and women World Championships, European Championships and Olympic Games. This difference is probably due to the low level of the Greek Championship. On the other hand, the average shot effectiveness (54.15%) from all playing positions seems to be similar to the reports of Meletakos *et al.* (2011) of the Men's World Championships of 2005, 2007 and 2009. The average shot effectiveness of all playing positions was found to be 53.5±8.3%, 54.4±6.3% and 54.8±6.1% respectively, corresponding to an average of 50.6±2.5, 52.5±3.1 and 50.3±3.2 shots per game and 27.2±4.7, 28.5±3.1 and 27.6±3.9 achieved goal per game. The lower score of shots per game in the Greek men's championship is attributed to a clear qualitative difference of Greek handball players and the elite players that participated in the world championships. In the study of Gruic *et al.* (2006) an average of 51 throws per game was found for all the teams that participated in the 2003 World Championship. Ohnjec *et al.* (2008) over a sample of 60 handball games during the preliminary part of the 2003 Women World Championship reported an average number of 51.79 throw per game with a shot efficacy of 52.46%. Furthermore, in terms of throw efficiency there is no significant difference between the major tournaments such as the Olympics, the World and European Championships with an efficacy ranging from 49 to 67% (Bilge, 2012). All the aforementioned differences are comprehensibly explained, if the variability of the players and the teams' qualities is taken into consideration. The differences that were found between the present study and the reports of great championships and elite level tournaments are acceptable considering the qualitative differences of the samples.

Regarding the playing position, in the current study, the largest number of throws (1276) was taken from the peripheral players (C, LB, RB) with an efficacy between 48% and 51%, according to the positions from where the shot was taken. 65.6% of the shots performed by CB, LB, RB were executed from a distance of nine-meters or more, with average effectiveness of 38 – 40% (Table 5). Fast break and break through shots followed. Line players performed fewer shots but with greater effectiveness (60.34%). The results are in agreement with the previous research conducted during the preliminary round of the 2003 World Championship for women (Ohnjec *et al.*, 2008) and men (Gruic *et al.*, 2006). The majority of the shots were performed from the backcourt positions with an average effectiveness of 34.10% and 38.5% followed by the shots performed from the wings position with an effectiveness of 50.07% and 55.7% and shots taken from the goal area line with an efficacy of 70.03% and 62.5% respectively.

Furthermore, center backs were provided with more chances to attempt shots. They scored more goals per game, though they were less effective. This was an expected outcome, since this player has an advantageous

position in the central attacking area, using a multitude of possible moves across the width and depth of the defense, has ball possession and more chances for final attempts. Opposed to offence, defense was striving to secure the central shot area by limiting the attacking options of center backs players. By comparing Men's World Championship in Tunisia (2005) to Men's World Championships in Germany (2007), one can see that there was a significant decline in the percentage of 6m and 7m throws. Break-through shots during the Men's World Championship were gradually reduced from 2005 to 2009 (Meletakos *et al.*, 2011). According to research, this significant 6m shots decrement was compensated by a significant increase of the 9m shots. The line player's effectiveness was found to be higher in comparison to the rest of the playing positions' shots. This was an expected outcome, since 6m shots are performed from closer distances and the most favorable shooting area of the 6m line. In that sense, attacking with the line player seems to be the most successful form of attack. Spate (2005), after studying 2003 Men's World Championship and the 2004 Olympics reached the same conclusion.

Gruic *et al.* (2006) ascertained that line players and also wings players play an important role for the success of a team in high level female games. It is obvious that the high performance of players in scoring when they are close to six meters leads the opponent defenses to focus their attention mainly on this area while they try to keep the ball from going to these players. As a consequence, the defense tactic on the six-meter line forces the backcourt players (LB, RB, and CB) to execute many more attempts from a distance of nine-meters or more. Therefore, a high percentage of goals will be achieved behind the nine-meter line and a small percentage will be achieved from other attack scenarios. In that way, the existence of tall backcourt players (LB, RB, CB) who are very good shooters gives them the opportunity to direct the ball in all the areas of the goal according to the defense formation and the goalkeeper's position and furthermore to cooperate with the line player in an excellent manner. This is a staple in modern handball (Meletakos *et al.*, 2011). During the 2009 World Handball Championship, the difference in the number of attacks between the winning and losing teams was insignificant. At the same time, the winning teams have many more goals from the line player (many more attacks from 6m). Therefore, a larger number of goals that line players scored significantly contributed to the higher effectiveness of the winning teams (Foretić *et al.*, 2010).

In the present study, the highest goalkeeper effectiveness was found to be in the shots from the wing area and from the 9m shots. In contrast, the lowest effectiveness was found to be in fast break shots and in 7m shots. In these attack attempts, the goalkeeper is alone with the shooter and the difference from the other shots is that, in these shots, both for the goalkeeper and the shooter are prepared. Therefore, if we consider time, the goalkeeper can prepare himself but because of the distance and the shooting area position (central position), he has few chances (small effectiveness) to block and save the ball. On the other hand, from the wing area, because of the small shot angle, goalkeepers increase their effectiveness, while from the 9m shots goalkeepers have a long distance from the shot point and have more time to react and watch the trajectory of the ball. As a consequence, this leads to an increase in the goalkeeper's effectiveness in the wing and 9m shots.

According to the statistical analysis of the World Championship in 2009 (Alexandru *et al.*, 2009), the most effective position for scoring was in fast break (88.2%) and following that in the break-through position (75%). Recent research studied the goalkeeper's performance for a long-time period for the purpose of watching their progress during the Olympic Games from 1982 until 2012. The results showed that through all these years goalkeeper's moves, actions and save tactics don't change significantly (Espina-Agulló *et al.*, 2016). Shots from the wing area are carried out with high speed and close to the goal. Therefore, theoretically there is an essential difficulty for the goalkeepers to block – save the ball. However, from the wing shots goalkeepers have basically an advantageous position covering the goal and the shot angle correctly, thus forcing players to make errors or to do parabolic-type shots (lob shots-throws).

Goalkeepers in team handball perform solely and must concentrate on a quick and explosive execution of a movement in a restricted space and in a flash, as it is important for the acceleration of his body and his arms. Normally, the overall performance of the goalkeepers is affected by anthropometric – morphologic characteristics, skilled perception, reaction time, experience and by the quality of defense. For the selection of goalkeepers Justin *et al.* (2013) suggested besides anthropometric measures, a well-designed evaluation test of basic and specific perceptual and motor abilities which will be repeated during the years.

Conclusions

It is certain that the modern trend in team handball is for the game be faster and more attractive. The goal is the main component of the game and the result of the attacks efforts. All players try to score with higher efficiency but, at the same time, goalkeepers have an important role for defense and try to ward off the danger of the opponent players. By nature, and by the defense tactic team handball has some field areas in which the goalkeeper has more advantages and more opportunities to block-save the ball. These positions are the corners and the nine-meter area. On the contrary, field players in attack in these areas try to pass by and to overcome these disadvantages by nature. As a consequence, this leads these players to find another way to be more effective (more technical, parabolic-type and stronger shots). The success of the field player or the goalkeeper in this battle depends on the level of each player. It is also suggested that additional studies with such analysis of

the game should be recorded in order to obtain scientific data. These findings could be added to the international scientific research and the end goal would be to follow the modern trends of this sport.

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