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ORIGINAL RESEARCH

IMPROVING THE GAME STRATEGY OF HANDBALL PLAYERS BY USING MARTIAL ARTS METHODS

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This research focuses on technical similarities between handball and martial arts; particularly the correlation between the attacking / defending handball strategy and the combat distance of martial arts.

The need of optimizing the attacking and the defending strategy is absolutely necessary because when we talk about the performance level there is almost no difference for teams being in the first echelon of the Romanian handball and the match scores are very tight in many situations, which requires some technical and physical training adjustments.

To verify the hypothesis we conducted a longitudinal experiment between 5 July 2008 and 18 May 2009, having as subject the male handball players of C.S. Suceava University Team (line players – 3, wing players – 4, back court players – 4, center players – 2).

Considering the factors that influenced the team performance potential and the research information we could see that martial arts programs had positive effects for trainings and competitions.

Key words: handball, martial arts, defending strategy, attacking strategy, combat distance

Rezumat

Prezenta cercetare abordează problema similitudinilor existente între tehnica jocului de handbal și cea din artele marțiale; în special corelația ce există între tehnica atacantului (demaraj, fente – schimbare de direcție, depășire, pătrundere) și apărătorului (marcaj, contracararea depășirii, atacarea adversarului cu corpul, atacarea brațului de aruncare, închiderea culoarului de pătrundere) din handbal cu cea a distanței de luptă din artele marțiale.

Necesitatea optimizării tehnicii atacantului și apărătorului este imperios necesară deoarece nivelul performanțial al echipelor din primul eșalon valoric al handbalului românesc este foarte apropiat, iar rezultatele jocurilor sunt în multe situații strânse, fapt ce impune ajustări la nivel tehnic și fizic a pregătirii sportive.

Pentru a verifica ipoteza am făcut un experiment longitudinal în perioada 5 iulie 2008 – 18 mai 2009, având ca subiecți jucătorii de handbal ai C.S. Universitatea Suceava (pivotal – 3, extremă – 4, inter – 5, centru – 2).

Ținând cont de factorii care au influențat potențialul de performanță a echipei pe parcursul sezonului competițional și din datele obținute din cercetare reiese că aplicarea programelor cu mijloace artele marțiale au avut efecte pozitive în pregătire și competiție.

Cuvinte cheie: handbal, arte marțiale, tehnica apărătorului, tehnica atacantului, distanța de luptă

Introduction

Handball is a constant struggle between attackers and defenders to effectively perform the tasks that the game requires, but also to perform the tasks required in competitions.

This opposition is developed throughout the entire game, the attacker position alternating with the defender position for more than 60 times.

This research focuses on technical similarities between handball and martial arts; particularly the correlation between the attacking / defending handball strategy and the combat distance of martial arts.

The purpose of the attacking strategy is to obtain favorable circumstances for the completion of an action, and the purpose of the defending strategy is to effectively block the actions of the attackers.

In martial arts one of the most important factors of the success in competitions is the need of optimizing the distance strategy, meaning the ideal distance from which they may get the most successful attacking or defending schemes.

The combat distance brings into question the notion of safety sphere, meaning an imaginary sphere surrounding the player, allowing him to effectively defend himself or to rapidly attack.

The combat distance can be divided into three categories: short, medium and large.

In case of short distance the contact with the opponent can be done without moving; the range of the short distance has the length of an arm, meaning small, being the distance of maximum safety for fighters, while concentration and attention are the maximum allowances.

The medium distance is that in which the player must move (one step) to get physical contact with the opponent.

The large distance involves multiple steps (minimum two) to get in contact with the opponent.

Applying in handball the combat distance strategy from martial arts means taking into account that the martial arts combat involves two athletes, while in handball the opponents are in fact two teams, which allows mutual support in fulfilling specific tasks.

Also, both in handball and martial arts body contact is allowed, this similarity being an atuu in implementing martial arts methods in order to improve and streamline the handball players' strategy.

The team handball is a complex system establishing internal and external relationships to increase the team performance capacity. The results of competitions are based on technical skills and physical potential of the handball players.

The need of optimizing the attacking and the defending strategy is absolutely necessary because when we talk about the performance level there is almost no difference for teams being in the first echelon of the Romanian handball and the match scores are very tight in many situations, which requires some technical and physical training adjustments.

If the training uses the combat distance methods of martial arts, we can optimize the attacking and defending strategy that will lead to increasing the efficiency of throws and to solving the defensive situations.

Material and methods

This research uses a complex approach for analyzing the training of senior handball players. The research started from establishing the specifics and the particularities for enhancing the handball strategy by using technical methods of martial arts, more exactly the combat distance technique.

In order to achieve the proposed objectives, there were used the following research methods:

- special literature studies;
- pedagogical experiment;
- statistic and mathematical method of data processing;
- graphic method.

Results

To verify the hypothesis we conducted a longitudinal experiment between 5 July 2008 and 18 May 2009, having as subject the male handball players of C.S. Suceava University Team (line players – 3, wing players – 4, back court players – 4, center players – 2).

In the 2007-2008 edition of the championship (26 matches) the male handball team was the fifth in the National League Championship, gaining 27 de points, scoring 726 goals and receiving 697 goals, meaning an average of 27,92 scored goals and 26,81 received goals.

In Table 1 we can see the share of scored goals and the efficiency of throwings according to different game positions. The efficiency of throwings varies between 48,37% and 69,53%, while the team average was about 57,42% during the 2007 – 2008 competition season.

Game position	Share of scored goals (%)	Efficiency of throws (%)
Line player	26,11	69,53
Wing player	21,23	59,61
Back court player	38,77	52,18
Center player	13,89	48,37
Overall / average	100	57,42

Table 1 Synthetic indicators for the 2007-2008 competition season (26 official matches)

Once starting the training for the new competition season, there were introduced programs that included methods of martial arts technique (combat distance), adapted to the specific and the needs of handball players for attack and defense.

The training exercises were used in the introductory and fundamental lesson of sports training.

The exercises lasted approximately 18 minutes (least 12 minutes, maximum 22 minutes). There were three lessons for preparatory period and one lesson for the period preceding the competition and during the competition, lessons that used methods of the proposed programs.

After 11 months of training using martial arts methods – the combat distance strategy – , adapted to the particularities of handball game strategy, the synthetic data obtained in the Male National League Championship of the 2008 – 2009 edition (26 official matches) are shown in Table 2.

Game position	Share of scored goals (%)	Efficiency of throws (%)
Line player	25,58	68,17
Wing player	19,73	61,04
Back court player	41,11	52,68
Center player	13,58	49,64
Overall / average	100	57,88

Table 2 Synthetic indicators for the 2008 – 2009 competition season (26 official matches)

Analyzing the data of Table 2 we remark light changes on the share of goals scored by players specialized on the handball court positions (4 in number). Compared to the previous period, the average efficiency of the team increased in this period by 0,46%.

In the 2008 – 2009 edition of the Men's National League Championship (26 matches), the handball team was the sixth, gaining 28 points, scoring 775 goals (an average of 29,81) and receiving 709 goals (average – 27,27); the sixth position meant for the team the participation in the European Cups and in the 2009 – 2010 national competition season.

Data of the 2007-2008 season contain information of 26 official matches and data of the 2008-2009 season are based on information of 26 official matches – Men's National League Championship, where we

added 10 official matches of the European Cups (Challenge Cup) where the players reached the final (Table 3)– the European Cups matches are not part of the research.

Game position	Share of scored goals (%)			Efficiency of throws (%)		
	2007-2008	2008-2009	Progress ±	2007-2008	2008-2009	Progress ±
Line player	26,11	25,58	-2.07%	69,53	68,17	-2.00%
Wing player	21,23	19,73	-7.60%	59,61	61,04	2.34%
Back court player	38,77	41,11	5.69%	52,18	52,68	0.95%
Center player	13,89	13,58	-2.28%	48,37	49,64	2.56%
Overall / average	100	57,42	-1.57%	100	57,88	0.96%

Table 3 Comparative synthetic indicators for two competition seasons: 2007 – 2008 and 2008 – 2009

THE EVOLUTION OF THE INDICATORS IN BOTH SEASONS

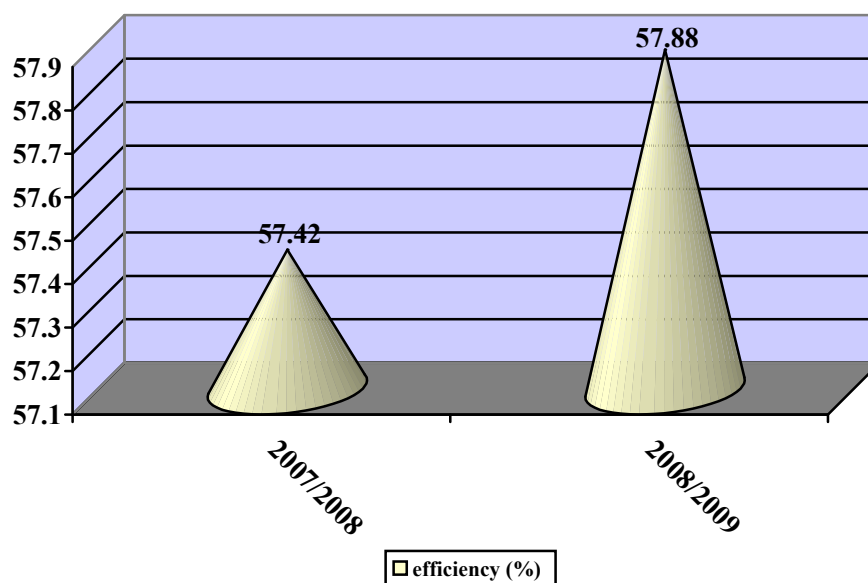


Chart 1 The evolution of the indicators in both male handball seasons

Making a comparison between the two male handball seasons there are fewer goals scored by line players (2,07%) and by center players (2,28%), even less goals scored by wing players (7,6%); the only progress was of backcourt players – an increase of 5,69%.

Regarding the efficiency of throws, there was only one regression for the line players (2%); for the other game positions there were progresses between 0,95% and 2,34%; comparing the 2008 – 2009 season with the 2007 – 2008 season, the progress average expressed in percentage was about 0,96%.

Examples of methods of training programs:

1. Standing, on signal (visual, auditory), passing on the basic position forward, sideways, obliquely, fixed position, rocking on ankles.

2. The same exercise executed while moving: moving, running, running with knees up, running by switching the shanks.

3. Basic position, moving (sideways, forward, backward, moving obliquely by added steps, jumping, steps by lunging) and twisting.

4. To capture the movement attention, standing in pairs, at a distance of an arm length, one counts up to 5 with a loud voice, and the other with eyes closed must seize the moment when the partner moves and shouts STOP. The same exercise indicating the direction towards which the partner moves, moving to the same direction of the partner. After 2 minutes changing the roles.

5. In pairs, moving like in a mirror (forward, backward, obliquely, sideways, combined), in which one leads executing preset movements, and then free. After 1 minute changing the roles.

Conclusions

Although the team progress is not great overall, only 0,96%, this was important because the difference between the 6th (last position, which ensures the participation in European Cups) and the 7th position was 1 point in rating.

During the research, the number of official matches was higher by 40%, being periods when the team had matches scheduled at an interval of 3 – 4 days.

Besides the density of the competition program the players had to travel great distances, fact that has influenced the evolution of players, especially in the second part of the competition season (February-May 2009).

Considering the factors that influenced the team performance potential and the research information we could see that martial arts programs had positive effects for trainings and competitions.

Combining technical elements of handball with technical elements of martial arts, elements with positive effects for both trainings and competitions, we must take into account some basic requirements:

- familiarize players with physical contact;
- awareness of physical contact's importance in handball;
- anticipate movements of opponents;
- rapid reaction to opponents' movements;
- getting favorable positioning (placement) towards the opponent;
- limiting the possibilities of opponents' action;
- collaboration with team colleagues in order to fulfill the game tasks.

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