



OPTIMIZING HEADER IN HANDBALL BY USING FALLS SCHOOL'S METHODS OF MARTIAL ARTS

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Summary

Having as reference specific positions along the semicircle there were diversified technical goal schemes. Thus, the line player uses a series of throws based on header throw, and the wing player uses different schemes of header jumping throw.

The need of header optimization is given by the fact that the contribution of the line player and of the wing player to the number of goals listed by the team is approximately 53% (according to data analysis during the 2007-2008 season of the Male National League Championship).

We believe that using the martial arts methods of falls school for the technical training (header) optimization of the line and wing handball players could help increase the efficiency of the throws and reduce the number of injuries.

The experiment's results confirm the hypothesis of the research, the effects of the proposed programs being visible in terms of performance (number of goals, effectiveness of throws) and medically (fewer injuries).

Rezumat

În funcție de specificul posturilor de la semicerc s-au diversificat și procedeele tehnice de la poartă. Astfel, pivotul folosește o serie de aruncări bazate pe aruncarea din plonjon, iar extrema utilizează diferite variante ale aruncării din săritură cu plonjon.

Necesitatea optimizării plonjonului este dată de faptul că aportul extremelor și a pivoților la numărul total de goluri înscrise de o echipă, care este de aproximativ 53% (conform analizei datelor din sezonul 2007-2008 a Campionatului Ligii Naționale masculine).

Considerăm că utilizarea mijloacelor din școala căderilor din artele marțiale în optimizarea pregătirii tehnice (plonjon) a jucătorilor specializați pe posturile de pivot și extremă poate contribui la mărirea eficienței aruncărilor și la reducerea numărului de accidentări.

Rezultatele obținute în urma derulării cercetării experimentale confirmă ipoteza cercetării, efectele programelor propuse fiind vizibile în plan performanțial (pondere goluri marcate, eficiența aruncărilor) și medical (reducerea numărului de accidentări).

Key words: handball, martial arts, header, fall

Cuvinte cheie: handbal, arte marțiale, plonjon, căderi

Introduction

In attack, the wing players and the line players occupy favorable positions for goal throws, positions that they have to fructify. Factors limiting the effectiveness of throws are the throw angle, the attack angle, short time available for the attacker and the presence of the goalkeeper.

Having as reference specific positions along the semicircle there were diversified technical goal schemes. Thus, the line player uses a series of throws based on header throw, and the wing player uses different schemes of header jumping throw, having certain features:

- jumping preceded by 1-2 of moose steps;
- direction to the goal area should favor a large throw angle;
- a long, high jump;
- the jump is performed downward the flight.

The main forms of the header scheme completion are:

- header forward rolling or falling;
- header sideways rolling over the shoulder of the throwing arm;
- header with rolling back;
- jumping header – after a jump throw followed by landing with rolling back to the throwing arm after

the attenuation of the arms shock.

The "falls school" means acquiring preparatory exercises to perform properly falls. Falls school is also applied in everyday life. Many people hurt themselves in winter slipping on the ice; supporting the arm against the ground in a 90 degrees angle, the force lines are transmitted so that the shock occurs at the forearm, sometimes leading to fractures. Losing the equilibrium, a person tends to make muscles contract unnecessarily, although they should be relaxed (only some groups of muscles should be contracted). But young children are instinctively relaxed when they fall.

In establishing the rules underpinning the falls school, there were used studies made over 18 years by J. Kano and his students on animals (cat, tiger, dog) and human age groups (adults and children) in order to achieve useful results for practice.

The falls school is presented in three main forms, graduated from simple to complex, as the fall runs, during the training these forms being grouped according to the trajectory direction of the fall: falling back, falling aside and falling forward.

Learning technical processes is carried out on the right and on the left side. It is recommended that the technical procedure be adopted in both sides to avoid unilateral muscle development. Muscle tension on one side only determines vicious attitudes of the body and therefore there are necessary compensatory movements.

In martial arts the beginners and the great masters use falling exercises.

Exercises of "falls school" can be learned in the fundamental part of learning by beginners, and in the introductory by senior players: falling forward on hands or forearms; falling back rolling or jumping; fall by rolling; acrobatics gymnastic exercises, which are useful for fallings (rolling, jumping over obstacles); preparatory exercises for protection and selfprotection.

Falls school in martial arts has two distinct forms: martial disciplines where the contact with the ground is less severe (bed, tatami) and the fallings are mainly by rolling and passing the shock to the battle area, and the full-contact martial where the battle area is tougher (podium, soil) falling forward on hands or forearms, having a lot in common with header of handball or volleyball.

Premises

The handball team is a gear of subsystems (players) that sets internal and external relations, strong and stable in order to increase the team performance capacity (performance of the system). The performance gained in handball competitions is based on technical and tactical skills of players, but also on obtaining high levels of physical training, especially strength and speed. The need of header optimization is given by the fact that the contribution of line player and wing player to the number of goals listed by the team is approximately 53% (according to data analysis during the 2007-2008 season of the Male National League Championship).

Hypothesis

We believe that using the martial arts methods of falls school in the optimization of technical training (header) of the wing and of the line players could help increase the efficiency of the throws and reduce the number of injuries.

Materials and methods

In this work we have a complex landing in order to explore different aspects concerning the senior handball player training. The based-line direction of the research was one by determining specific features of diving through methods of falls school specific in martial arts for senior handball players in competitions and some conditions that can raise the level of training.

To achieve the objectives, we used different methods of investigation, such as:

- research of specialized works;
- the method of pedagogical observation;
- the pedagogical experiment;
- the statistic-mathematical and graphic method.

Results

The falls school is a very good method of self protection, and the common points between martial arts and headers of sports games, in our case of handball, lead to optimization of the handball players training by using falls school tactics.

To verify this hypothesis, we conducted a longitudinal experiment from July 5 to December 9 in 2008,

with wing players (5) and line players (3), handball players who are the members of the team of the University "Ștefan cel Mare" of Suceava.

We point out that the 2007-2008 championship (26 official matches), the number of goals scored by wing and line handball players was about 47,34% (line player – 26,11%, wing player – 21,23%), the efficiency being about 64,57% (line player – 69,53%, wing player – 59,61%) and the number of injuries in matches which required more than 48 resting hours, according to data provided by the team doctor, was the following: wing player – 29 (MA-4, DF-6, GR-9, BC-3, AF-7), line player – 22 (TC-7, IG-11, SM -4) (Table no.1).

Game position	Goals (%)	Throw efficiency (%)	Number of injuries
Line player	26,11	69,53	22
Wing player	21,23	59,61	29
Amount, average	47,34	64,57	51

Table no.1 Synthetic indicators for the 2007-2008 competition season (26 official matches)

Starting the new competition season (2008-2009), for wing and line handball players there were introduced in their training programs that included methods of the falls school martial arts, methods adapted to specific needs of the handball players.

The proposed exercises were used both in the introductory and basic training sports lesson.

The execution of the exercises during the training lesson was about 25 minutes (minimum 20 minutes, maximum 35 minutes). The number of lessons that used methods of the proposed programs was 4 for preparatory and 2 for the period before competition and that of the competition itself.

After five months of training that used methods of the falls school of martial arts, adapted to particularity of line and wing positions, the synthetic data obtained during the Male National League Championship (13 official matches) are shown in Table no. 2 .

Game position	Goals (%)	Throw efficiency (%)	Number of injuries
Line player	29,43	75,87	10
Wing player	24,15	63,24	11
Amount, average	53,58	69,56	21

Table no. 2 Synthetic indicators for the 2008-2009 competition season (13 official matches)

The analysis must take into account that the data for the 2007-2008 season include data of 26 official matches and the 2008-2009 season is based on data of 13 official matches (Table no. 3).

Game position	Goals (%)			Throw efficiency (%)			Number of injuries		
	2007-2008	2008-2009	±	2007-2008	2008-2009	±	2007-2008	2008-2009	±
Line player	26,11	29,43	+12,7%	69,53	75,87	+9,7%	22	10	-9,1%
Wing player	21,23	24,15	+13,8%	59,61	63,24	+6,1%	29	11	-24,1%
Amount, average	47,34	53,58	+13,2%	64,57	69,56	+7,7%	51	21	-17,6%

Table no. 3 Synthetic compared indicators for the two competition seasons: 2007 – 2008 and 2008 – 2009

THE EVOLUTION OF THE INDICATORS IN TWO COMPETITION SEASONS

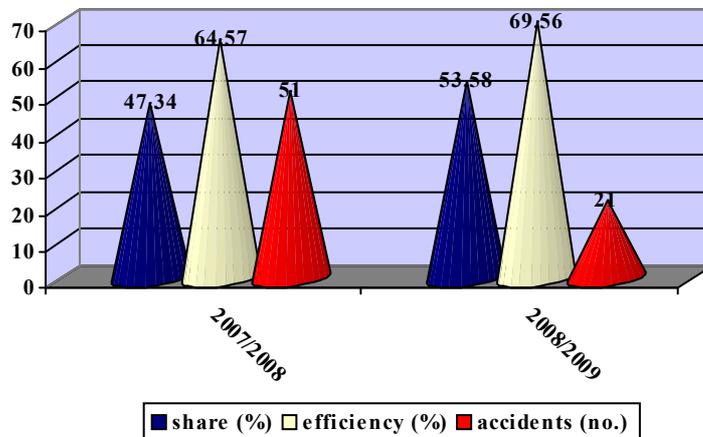


Chart no. 1 The evolution of the indicators in two competition seasons

For line handball players, the scored goals share increased from 26,11% to 29,43%, a percentage increase about 12,7%. The efficiency registered an upward trend from 69,53% to 75,87%, the percentage increase recorded was 9,7%. For the number of injuries, statistically established for the entire competition 2008 – 2009 season decreased by 9,1%, from 22 to 20 (10 for the championship round).

For wing players, the percentage increase for the scored goals was 13,8%, from 21,23% to 24,15%; the efficiency of throws increased from 59,61% to 63,24%. The number of injuries decreased by 24,1%.

Overall, there is an improvement for the share of the scored goals(13,2%), for the efficiency of throws (7,7%) and fewer injuries improvement by 17,6%.

Examples of training methods

1. Standing, balancing backward, falling forward on the arms with depreciation. The same exercise performed with a partner that causes loss of balance. The same exercise performed initially with open eyes, then with closed eyes.
2. The same exercise performed from a 10 – 15 cm height, falling on the mattress.
3. Standing backward, rotation (90 °, 180 °) and falling. Execution of the same exercise with a leg over the thigh of the other leg.
4. Standing backward, supporting on one leg, jumping with 360 ° rotation and falling on the arms with depreciation. The same scheme, the swinging leg being immobilized by a partner.
5. Sitting on one side of the body, which is a circle arc. The same exercise performed in standing, walking and falling in different directions, then the same exercise, but jumping.

Conclusions

In order to achieve an effective training at this level, there must be taken into account several methodological indications of the completion of header throw school and indications of the falls school of martial arts combined with those of handball:

- the falls school should familiarize players with the landing;
- exercise on soft ground (sand, water, mattresses);
- eyes directed towards the goal;
- the ball will be released when the body makes with the ground an angle of about 45 °;
- the player must concentrate on throwing and not on falling;
- in the preparatory phase general projection center of gravity of the body must be inside the polygon of support;
- the player should avoid collapse, but having relaxed muscles;
- the contact surface with the ground should be bigger; when they fall by rolling, the contact is made successively from one point to another within the body;
- maintaining flexed head (chin to chest), the occipital region being protected in the direct contact with the ground and coordinating body movements in the air;
- legs attenuate shock, shoe size on the ground, the leg is bent from knee;

- when the player falls by jumping, the body is in contact with the ground in succession, from shoulders to feet.

The results obtained in the experiment confirm the hypothesis of the research, the effects of the proposed programs being visible in terms of performance (scored goals – 53,58%, effectiveness of throws – 69,56%) and medically (fewer injuries – 17,6%).

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