

Study on the preparation of a training program of the representative feminine handball team for participation in European university games, Rijeka – Croatia

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Abstract

Developing a training program for the female handball university representative team in order to participate in the European University Games is a necessity in order to achieve a high level of training. In order to achieve results in the European handball game, it is important to check the training concepts that should consider choosing the most effective means of training by simultaneously tackling all the training factors, focusing on developing the possibilities and capabilities of the athletes.

Key words: female handball, program, representative team, European Games.

Introduction

In developing a training program, we must include the fundamental factors of training, namely: physical, technical, tactical, psychological and theoretical. Between these five factors important relationships are established, especially between physical, technical and tactical training. They are an essential part of any training program, regardless of the age of the players, the individual potential, the level or period of training.

Most training programs, in sports games, pay attention to technical and tactical training, neglecting physical training. However, physical training must be the basis of any training program, because fatigue is directly related to physical condition.

The physical training of a player is less, the faster he gets tired. When the player gets tired, technical and tactical skills deteriorate. A high level of fatigue also affects tactical reasoning during play, which means more mistakes and, consequently, weaker performance. That is why physical training must be the basis of any training program.

To be effective, a team's training process must be focused on achieving the game model. All the operations involved in the training process: the development of the prospective game model, the optimization of the basic structure of the team, the composition of the team, the role and tasks of the players, the collaboration relationships, the optimization of the training process and the evaluation of the training capacity in competitions, improve player training to increase performance.

The orientation in the sports training methodology in the preparation of a female handball team should have the following characteristics: the coach should know the development trends of the national and international handball game, the training will constantly bring in new things, be creative, make a team in which players have value through effective play parameters: throws from action, throws from 9 m, throws from 7 m, defense balls (interceptions, blocking throws at the goal, removing the ball from opponent), missed balls, decisive passes, scored goals.

As basic strategic variants in the formation of the performance teams we mention: elaboration of the prospective game model, elaboration of the team model (the basic structure of the team, establishment of the tasks on the positions and the collaboration relations, establishing the model of the players from the physical, technical point of view, tactical, psychological and theoretical, tactical model for attack and defense, collective actions and individual tactical actions).

2. The hypothesis of the work. This paper aims to demonstrate that if we develop a training program at the level of the women's handball team then, following its application in the training lessons, a higher level of training will be achieved which will lead to efficiency obvious performance of the team at the European Handball Women's European Games.

3. Purpose of the paper. The purpose of this research is to develop a training program for the women's handball team representative for participation in the European University Games in Rijeka - Croatia.

4. Research methods. In order to achieve the aim and objectives proposed in research, we used the following general and particular research methods: documentary information, pedagogical observation, experimental method, measurement and evaluation methods, statistical and mathematical method and graphical representation for analysis and interpretation of data.

5. Objectives and tasks of research:

- Studying the bibliographic material;

- Establishing the sample to be surveyed;
- Establishing control samples;
- Performing initial testing;
- Elaboration of a training program at the level of the women's handball team representative for participation in the European University Games;
- Practical implementation of the elaborated program;
- Perform final testing;
- Centralization and data processing;
- Interpretation of data;
- Formulation of conclusions.

Operational approach to research:

The sample surveyed included 16 players from the women's handball team representing the University of Pitesti, which had approximately the same age and level of training characteristics.

The research was conducted in the Polivalent Hall and in the fitness hall of the University of Pitesti, equipped with the equipment and sports materials necessary for the development of the instructive-educational process. The study period ran from 30 May 2016 to 10 July 2016. The duration of the study in which the training program was applied was 6 weeks and the number of training was 30. The initial testing was conducted on 30-31 May 2016, final testing on July 9 - 10, 2016.

Preparing the training program

Table 1 - Training program applied to the women's handball team during the 6 weeks

	Nr. lesson	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Training time (min)	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Physical training	Develop resistance (min)	5	5	5	7	7	7	10	10	10	12	12	12	12	12	12
	Strength Development (min)		5		8		8		8				5		5	
	Developing Skill, mobility and flexibility (min)	7	7	7	7	10	10	10	7	7	7	7	7	7	7	7
	Development of Detention (min)								5		5		5		5	
	Speed development (min)	5		5				7		6		6		6		6
Technical training	Elements and procedures technical attack (min)	30	30	30	35	35	35	35	35	35	30	30	30	30	30	30
	Elements and procedures technical defense (min)	15	15	15	15	13	13	13	10	13	13	15	12	15	11	10
Tactical training	Tactical Actions individual attack and defense (min.)	13	13	13	8	7	7	7	5	10	8	10	8	10		5
	Tactical Actions collectively attack and defense (min)	25	25	25	20	20	20	20	20	20	20	20	20	25	25	25
	Play school and school training	20	20	20	20	20	20	20	20	20	25	20	20	25	25	25

Table 1 – continued

	Nr. lesson	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	Training time (min)	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Physical training	Develop resistance (min)	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	Strength Development (min)	5		5		5		5		5		5		5		
	Developing Skill, mobility and flexibility (min)	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8
	Development of Detention (min)	5		5		5		5		5		5		5		
	Speed development (min)		6		6		6		6		6		6		6	
Technical training	Elements and procedures technical attack (min)	30	30	30	30	30	30	30	30	30	30	30	30	30	25	25
	Elements and procedures technical defense (min)	12	15	11	15	12	10	11	15	12	15	11	15	11	15	15
Tactical training	Tactical Actions individual attack and defense (min.)	8	10		10	8	5		10	8	10		10		5	10
	Tactical Actions collectively attack and defense (min)	20	20	25	25	20	25	25	20	20	20	25	20	25	25	25
	Play school and school training	20	20	25	25	20	25	25	20	20	20	25	20	25	25	25

The data acquired during the survey were statistically processed, then the data was displayed in tabular and graphical form. Statistical data processing was geared towards highlighting some parameters such as arithmetic mean, standard deviation, and coefficient of variability. The statistical hypothesis was verified using the Student test.

Means of action for the elaboration of the prepared training program:

<i>Drives for resistance development:</i>	
Terminological description	Dosage
- The players will execute a fundamental defense move with exits, retreats, side shifts, jumping jumps to block the throwing balls, mimicking the blocking of the low balls.	6 series x 30 - 40 sec, pause 1 min.
- Players will adopt the average defensive basic position and will execute rapid exit and recall between the semicircle of 6 and 9 m followed by the sprint on a distance of 15 - 20 m.	10 repetitions, pause 30 - 40 sec.
- The players will execute a counterattack directly with a tip, followed by a bounce.	10 repetitions, pause 30 - 40 sec.
- The players are placed in a double swath formation. They will run two in the running on the length of the field.	4 series x 8 reps x 40 m, pause 120 sec. to the series.
- Dynamic game "Who holds the ball longer". It can be a dribbling poster and the opponents will be human in the whole field.	5 series x 1 minute, break 30 - 40 sec. on the series.
- The players are placed in a simple swift formation on the big diagonal of the field. They will execute passages from running without dribbling.	4 series x 8 reps x 40 m, 90 sec pause. to the series.

<i>Drive for power development:</i>	
Terminological description	Dosage
- The players are placed two face to face, they will execute passes and throws with the 1 kg medicinal ball.	5 series x 15 executions, pause 1 min.
- The players are placed face to face, each pair with a 1 kg medicinal ball. They will execute the asses at a distance, at first with an impatient arm, then with a less skillful arm, preceded by a step added or crossed.	6 sets x 10 assists, 30 sec pause.
- Sleeping dorsally with a 5 kg medicinal ball held with two hands above the head. The trunk is lifted simultaneously by throwing the ball to the wall at a distance of 2-3 m, catching it and lowering the trunk to the initial position.	5 series x 15 throws, pause 1 min.
- The players are placed two face to face, on the width of the handball field, behind the edge line, each pair having a handball ball. They will run at a distance.	5 series x 20 passes, 1 minute break between the evening.
- Pushups.	4 series x 10 reps, pause 30 sec. between the series
- Squats.	4 serii x 30 repetări, pauză 30 sec. între serii
Exerciții pentru dezvoltarea musculaturii membrelor superioare, abdomenului, spatelui, membrelor inferioare, realizate la aparate în sala de fitness.	serii de 10-15 repetări

<i>Drives for the development of skill, mobility and flexibility:</i>	
Terminological description	Dosage
- The players placed two face to face will execute the catching and bouncing of the ball from different positions: standing on a knee on a knee, etc. with handy hand, then with the least skillful hand.	3 sets x 15 passes, 30 sec pause. between the series
- Dribling multiple from the running, to the signal, sitting in the squatting position, lying down, lying on the back, etc. without interrupting the dribbling or losing control of the ball.	4 series x 3 minutes, 30 sec pause. between the series
- The players placed two face to face will execute the grip and the bouncing of the ball. Both grabbing and throwing the ball will be done by jumping (volleyball).	4 series x 20 passes, pause 1 min
- He walked in two of the running, with two balls.	4 series x 5 repetitions x 40 m, pause 1 min. between the series
- Players placed two face-to-face, perform grip and bird in place using two balls.	4 series x 30 passes, pause 1 min. between the series
- On the length of the field, catching the ball, bird fences, direction change, dribbling, special passes. Same exercise but on groups of two.	20 reps, pause 30 sec.
- Articular and mobility exercises for shoulder joints, coxo-femoral, knee, ankle and fist (rotation, bending, bending in different planes).	7 minutes

<i>Means of action for the development of detention:</i>	
Terminological description	Dosage
- Jumps in height, length, triple jump, pentasalt and decal.	5 series of 10 jumps, pause 30 sec. between the series
- Jump to the jump gate over the gym.	4 series x 10 throws, break 30 sec. between the series
- Jumping over jumpers over jumpers that block the throw.	6 series x 20 throws, pause 1 min. between the series
- Successive jump on both legs.	3 series x 30 m, pause 1 min. between the series
- Move in successive jumps from one foot to the other.	4 series x 30 m, pause 1 min. between the series

<i>Drive for speed development:</i>	
Terminological description	Dosage
- Running speeds over 40 m, with simple steering changes in marked places.	2 serii x 6 repetări x 40 m, pauză 1 min. între serii
- Multiple dribbling on the ground, with directional changes.	2 serii x 6 repetări x 40 m, pauză 1 min. între serii
- Moving to the defensive base position, to the coach's coach starting counterattack, catching the ball coming and throwing at the gate.	2 serii x 6 repetări, pauză 1 min. între serii
- He walked in two and three out of speeds, across the entire length of the field with a throw at the gate.	2 serii x 10 lungimi, pauză 1 min. între serii
- Players placed two face to face, with a hand over their shoulder, at the maximum bird speed.	6 serii x 20 pase, pauză 1 min. între serii
- High speed execution of goal throwing (Who runs faster and scores more goals than 9m or 7m throws).	3 – 4 serii a câte 10 aruncări, pauză 1 min. între serii
- Moving into a fundamental defense position, when the whistle starts in an accelerated run on the counter.	2 serii x 6 repetări, pauză 30 sec. între serii
- Moving to a fundamental position with a 9 m exit and a 6 m (4 - 5 out) quick retreat, with a whistle on the counter from 10 to 15 m.	2 serii x 6 repetări, pauză 1 min. între serii
- Direct counterattack with a tip and intermediate, at maximum speed, followed by throwing at the goal.	2 serii x 8 – 10 contraatacuri, pauză 1 min. între serii
- The players placed two, will execute throws from the posts, with an active defender, after some actions of overtaking at the highest speed.	5 minute

<i>Techniques and techniques of attack and defense</i>	
Terminological description	Dosage
- He walked in two of the running, all along the field. It aims to improve catching and chasing in high speed conditions.	4 series x 10 lengths, break 30 sec. between the series
- Simple sweeper to improve ball attachment.	7 minutes
- Players placed in positions on a semicircle. Running in eight. It is intended to improve the catch and the bird in conditions close to the game.	10 minutes
- Improving throwing to the gate from the counter-run.	3 series x 10 reps, pause 1 min. between the series
- Improving throws at the jump gate with 1, 2, 3-step or simultaneous beatings preceded by crossing and screen.	10 minutes
- Improving goal-specific throws.	10 minutes
- Games 2 x 2, 3 x 3, 4 x 4, 5 x 5, 6 x 6 without dribbling to a semicircle where the throwing at the gate is improved through different procedures	10 minutes
- Improving the attack of the opponent with the ball.	10 minutes
- Improving the removal of the ball from the opponent.	10 minutes
- Improving the blocking of throws at the gate.	10 minutes

<i>Acțiuni tactice individuale de atac și apărare</i>	
Terminological description	Dosage
- The players move in a fundamental defense position on the semicircle of 6 m. The coach whistles towards the ends of the field, they will receive the ball from the goalkeeper, after which they will go on counterattack trying to pass the active defenders from the center of the field.	3 series x 5 reps, pause 1 min. between the series
- The players are arranged as follows: in attack on the center and inter station and a defender. The players in attack after a few passes, threaten the gate, the defender comes out, and the striker through a change of direction exceeds the defender and throws to the gate.	2 series x 3 min, pause 30 sec. between the series
- The players are two, striker-defender. They will perform repeated overtaking attempts with directional changes, using dribbling as well. The defender is active. If overtaking occurs, it is thrown at the gate	3 series x 3 min, pause 30 sec. between the series
- The players are arranged as follows: two players in the inter and pivot attack or center and pivot and a semi-detachable defender. The 9m player passes the pivot, kicks the ball in the penetrations and throws the jump gate. The pivot, after crossing the ball, makes the screen.	4 series x 2 min, pause 30 sec. between the series
- The players are arranged as follows: two in attack on the inter and center post and a guard	4 series x 3 min,

that marks man to man the inter. The cross passes to the center and blocks the defender who marks it. The center makes a jump start opposite the jam and goes to the side of the jam and throws at the gate. The defender is semi-active and then active.	pause 30 sec. between the series
- The players are arranged as follows: center, inter and pivot. The center plays in the dribbling, interlocking with the ball in the hand for the inter who, after a fart outwards, goes inside, receives the ball from the center and throws the goal or hires the pivot.	2 series x 3 min, pause 30 sec. between the series
- Playing with 2 x 2, 3 x 3, 4 x 4 with the ball out, removing the ball from the dribbling, intercepting, blocking balls thrown at the goal, man-to-man mark and intercept mark.	2 series x 5 min, pause 1 min. between the series
- Two defenders against three attackers; the attackers move on different planes and give their shit, and the defenders move towards the opponent with the ball	2 series x 3 min, pause 30 sec. between the series
- The players will execute a two-point counterattack, followed by defense in defense.	2 sets x 10 reps, pause 2 min. between the series
- Temporary Defense. A defender against two attackers; the defender moves towards the ball holder who performs the dribbling.	2 series x 3 min, pause 30 sec. between the series

<i>Collective tactical tactics of attack and defense</i>	
Terminological description	Dosage
- Players are placed in positions. Perform the poultry system as follows: C - IS - ES - C - ID - ES - C - P; brisk kicks are used over the shoulder at the desired pace as well as for placing the players in the positions. During the steps the players do not penetrate the gate, nor will they be abused by hired pivots.	2 series x 5 min, pause 30 sec. between the series
- Players in the attack system with two pivots. The passes will be executed as follows: ES - IS - ID - PD - ED - ID - IS - PS and vice versa. It insists on straight steps without a vault. If the pivots are not demoted the ball is transmitted to the extreme, where the phase will resume. Semi-active and then active protectors can be inserted.	2 series x 5 min, pause 30 sec. between the series
- Players are placed on four rows at extremes. Running long and short passes in penetration, after which each player moves to the string he passed. The precision of long walks develops, forming the habit of penetrating the pass.	2 series x 5 min, pause 30 sec. between the series
- Low Effect Game: 3 x 3, 4 x 4 with theme: finishing only on Inter.	2 series x 5 min, pause 30 sec. between the series
- He stepped into successive penetration. When the ball reaches an extreme it will transmit it over the semicircle, then the exercise will resume. After three or four turns, the exercise resumes in reverse.	2 series x 5 min, pause 30 sec. between the series
- Hiring the pivot to complete successive passes in the supernumerary attack (two pivots attack).	2 series x 3 min, pause 30 sec. between the series

Processing and interpretation of research results:

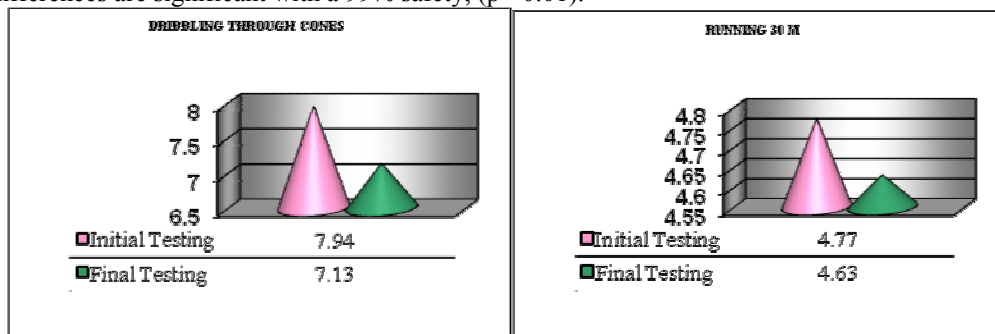
In order to verify the effectiveness of the prepared training program, a number of four control samples, considered to be representative for the evaluation of the handball handlers, were selected: 30 meters distance running, dribbling through the throws, throwing the handball at a distance three-step elbow and triangle movement.

	CONTROL TEST							
	Dribbling through cones		Move the triangle		Running 30 m		Throwing the handball	
	Initial testing	Final testing	Initial testing	Final testing	Initial testing	Final testing	Initial testing	Final testing
X	7,94	7,13	22,05	20,49	4,77	4,63	35,79	36,82
Sd	0,42	0,58	0,97	0,75	0,10	0,08	1,41	1,13
Cv	5,30	8,15	4,43	3,69	2,27	1,78	3,94	3,08
„t”	7,14		10,62		6,12		7,23	

Dribling through the balls. In the initial test, the arithmetic mean value is 7.94 seconds, a standard deviation of 0.42 seconds a coefficient of variation of 5.30% - high homogeneity for the final test the arithmetic mean value to be 7.13 seconds (superior to the test initial), standard deviation of 0.58 seconds, and a coefficient of variation of 8.15%. The value of the "t" test calculated between the initial and final test results is 7.14 compared to the "t" of the Fischer Table for the significance threshold of 0.01 with the value of 3,055 ne show that the differences are significant with a 99% safety, (p <0.01).

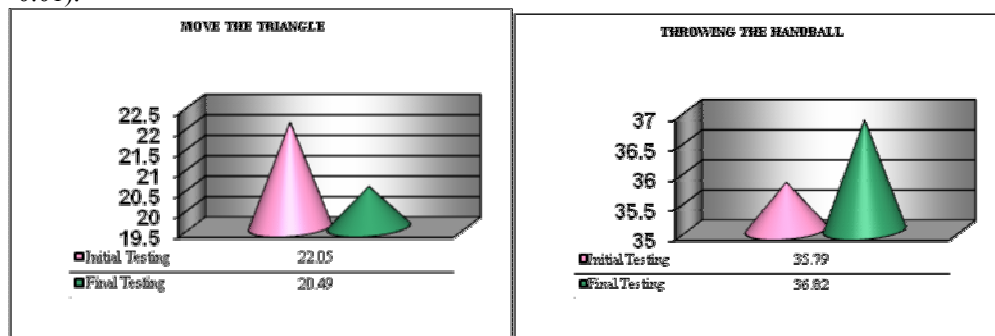
Move to triangle. At initial testing, the arithmetic mean value is 22.05 seconds, a standard deviation of 0.97 seconds a coefficient of variation of 4.43% - high homogeneity so that the final value of the arithmetic mean is 20.49 seconds (superior to the test initial deviation), standard deviation of 0.75 seconds and a coefficient of variation of 3.69%. The value of the "t" test calculated between the initial and final test results is 10.62

compared to the "t" of the Fischer Table for the significance threshold of 0.01 with the value of 3,055 ne show that the differences are significant with a 99% safety, ($p < 0.01$).



Running 30 meters. Arithmetic mean value at initial testing is 4.77 seconds, standard deviation of 0.10 seconds, and a coefficient of variation of 2.27% - high homogeneity for final arithmetic mean value to be 4.63 seconds (upper initial testing), standard deviation of 0.08 seconds, and a coefficient of variation of 1.78%. The value of the "t" test calculated between the initial and final test results is 6.12, which compares to "t" in the Fischer's Table for the significance threshold of 0.01 with the value of 3,055 ne show that the differences are significant with a 99% safety, ($p < 0.01$).

Handball throwing records an arithmetic average value of 35.79 meters, a standard deviation of 1.41 meters, a coefficient of variation of 3.94% - high homogeneity for final arithmetic mean value to be 36.82 meters (superior to initial testing), 1.13 meter standard deviation, and 3.08% rolling coefficient. The value of the "t" test calculated between the initial and final test results is 7.23 compared to the "t" of the Fischer Table for the significance threshold of 0.01 with the value of 3,055 ne show that the differences are significant with a 99% safety ($p < 0.01$).



Conclusions:

During the experiment, players have made significant progress on all control samples.

The training program elaborated and used in the training process at the female handball university representative team of the University of Pitesti led to the improvement of the players' training level.

The performance of the University of Pitesti team at the European Handball Women's Games, following the elaboration of the training program, was superior to the previous participation, and the team succeeded in ranking VII.

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