EVALUATION OF JUMPING IN VOLLEYBALL MATCHES BY KOSOVO FEMALE REPRESENTATIVES

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Abstract: Introduction. Volleyball is one of the most popular team sports in the world which is played and characterized by very dynamic actions, such as: kicks, blocking, receiving, passes, crashes, falls and many actions which are enriched with technical-tactical aids. 16 female players of the volleyball representative of Kosovo, aged 19-31 were the population of this research paper. Measurements were made in 2019 during the preparation period of the Kosovo represenatative team for the friendly match Kosovo – Albania.
Purpose. Since jumping is one of the key skills in volleyball, the purpose of this paper was to evaluate the ability of vertical jumping in female volleyball players of the Kosovo representative team.
Methods. The participants were divided according to the positions in the game;(hitter) corrector (n = 3), blocker (n = 5), setter (n = 3), receiver (n = 5) and libero (n = 2). The methods of work are: jumping from the ground without the aid of hands, as measured by the New Test Power Timer, while vertical attack and defense jump tests are measured near the net on the volleyball court; then body mass was measured with the "In Body" apparatus, and body height was measured with the "Laffayette" anthropometer**.**
Results and discussion. The mean height of hitters is 171.50 cm, which is lower than the height of receivers 173.50, where their height is lower than that of correctors 179.17, while the average body height of blockers is lower than that of correctors 178 , 60 cm, while libero players have a body height less than all players which is 165.50 cm. On the jumping motor skills test, the passers have the lowest result with 51.50 cm, then the receivers with 54.25cm, and the highest result goes with the correctors with height 55.67cm, libero players with 57.50 cm and finally blocking players with average of 60.20cm.
The results of this study on morphological variables are similar to the results of other research. Vertical jump scores and tests are not as predicted with respect to playing positions, since in the offensive rebound, the correctors achieved the lowest score, while the libero players had the best results; however, according to other research, these results are not consistent with results in countries where volleyball is well developed.
Results in vertical jump tests are not as expected in relation to the positions in the match.
Conclusion. Based on the results obtained in this paper, attention should be paid to the morphological, motor and functional parameters and especially to the tests of vertical jump type and its strength.
Keywords: volleyball players, passers(hitters) followers, receivers, correctors, blockers, liberos, jumpers.

1. INTRODUCTION

Volleyball is one of the most popular team sports in the world characterized by dynamic multi-stroke action, blocking and other technical and tactical elements in areas that the net divides (Ibrahim, A., et al. 2015; Ibrahim, A., et al. 2011; Reeser, & Bahr, 2003; Tahiraj, E., et al., 2017).
Volleyball movement structures represent complex motor tasks, with fast, dynamic, jumps, blockings, services, shooting accuracy and tough defenses therefore the game of volleyball has managed to transform anthropological, motor and situational characteristics (Tahiraj, E., et al. 2017). In this sport, volleyball players are characterized by the explosive force of the lower limbs, since in the game they need to jump high to perform a hard hit; and at the same time, defensive players jump to prevent the opponent from gaining block points. In addition to the technical-tactical aspects of volleyball, morphological parameters and motor skills are also important, especially explosive strength, agility and reaction speed (Amasay, T., 2008; Lidor, R., et al. 2010, Tahiraj, 2009).
These actions, around the 224cm high net for women and 243cm for men, take place very quickly and in very short intervals. Therefore, both coaches and players themselves must pay attention to developing vertical jumps, as one of the most important motor skills for volleyball players.
Hitting the ball at high altitude is one of the decisive factors for playing volleyball (Wagner et al., 2009), so jumping is an indicator that is directly related to the outcome of the game (Tahiraj, E., 2009). Sports and players have their

roles in the field; so in the game of volleyball each player has his own position, name and duties. According to Marques et al. (2009), there is no difference between players according to their position in the game; also no differences were found in jumping ability among junior players based on playing positions (Duncan et al., 2006). In the flexibility test done with the juniors of the Kosovo representative, the libero players performed better than the passers,receivers or hitters, in endurance tests, again the libero players performed better than the other position players, whereas in the tests of repetitive strength of the legs and hands, better results are again found in libero players (Tahiraj, E., et al., 2017). However, according to the work of the authors Sattler et al. (2012), the findings show that there are differences between senior volleyball players depending on the position in the game.

2. PURPOSE OF THE PAPER

Both, in each sport and in the game of volleyball, players are usually divided according to the positions in the game: correctors, blockers, passers, receivers and liberos. The impact of vertical jump of players by position in the game is little researched, but jumping skills have been tested in many cases, such as on different force platforms, contact mattresses, field tests, etc. Therefore, the purpose of this paper was to evaluate the vertical jumping ability of female volleyball players in Kosovo.

3. METHODOLOGY AND PROCEDURES

In this paper, the "New Test Powertimer" with photo cells was used while recording the typical jumps through the CEV database. For volleyball players, the tests are typical: block defensive rebound and offensive rebound. The research involved 16 players of the female volleyball representatives of Kosovo, aged 18-31.

The measurements were made by a team of national coaches who are sport professors and these morphological parameters were taken at 09.30-10.30 in the morning while motor skills tests were carried out from 15.00 to 16.30 in the gym at an appropriate temperature of about 20C.

These measurements were made during the preparation period of the Kosovo National Team for Qualifications for the World Cup (Japan 2018), during 2017. Participants were divided according to the positions in the game: correctors (n = 3), blockers (n = 5), followers (n = 3), receivers (n = 5) and libero (n = 2). All players were healthy with no injuries 30 days before the measurement, the participants were informed in advance of the purpose of the measurement and their consent to participate was obtained.

Morphological variables, body mass, body height, and motor tests were obtained in this study through: high jump from the given position without the help of hands, vertical jump (attack or ball hitting) and vertical jump (with high block defense).

These tests were done during the preparations of the female representative for the friendly match Kosovo - Albania. The measurements were made in February 2019 in the room where the daily exercise was performed on favorable conditions. Measurement procedures began with body mass and height, where players were provided with training gear. The players have first warmed up the muscles of their lower, middle, and upper body parts; then the testing procedure began. There were three attempts for each type of jump. Between each test, players also had their own rest period within the 3-5 minute range. The hand-to-hand jump test was measured using the "Newtest Powertimer 300-series" device, while the vertical attack and defense jump tests were measured near the net on the volleyball ground.

In the test jumping from place to place, the player rests her hands on the waist, gathers knees approximately 90^0 and without moving hands makes 3 consecutive jumps.

In the offensive rebound test, the player has taken 2-3 pushing steps of her choice and by offensive hand in its striking in a hop similar to the jumping as shown during the match. In the defensive-block jump test, the hands were in front of the body, similar to the position in the game when players block the opponent's kick; the player after kneeling and with short push of hands jumps as high as she can trying to reach out as much as possible and touch the highest jump point.

In the test, body mass was measured in the "In Body 270" apparatus, and body height was measured with a "Lafayette Anthropometer".

4. RESULTS

Table 1 presents the results of descriptive parameters for motor tests and morphological variables. The average body height of passers/followers is 171.50cm, which is lower than that of receivers 173.50, whose height is lower than that of correctors 179.17, while the average height of blockers is lower than 178.60 cm, while libero players have the lower body height than other players, with 165.50 cm. At bodyweight, the lightest weight is with the libero and follower players with 63.15kg and 63.50kg, while the center-blockers are slightly heavier with 65.36kg, while the

correctors and receivers have almost the same weight with 66.87kg for the corrector and 66.88kg. kg for the receiving players.

In vertical jump tests, spot jump without the help of hands, followers have the lowest jump with 37.05 cm and correctors with 37.33cm, followed by receiving players with 40.15cm, which is less than libero players with 41.60cm, while blocking players have achieved the best result with 43.50cm.

In the offensive jump test, the followers have the lowest jump value of 51.50cm, followed by the receiving players with 54.25cm, then followed by the receiving players with 54.25cm, jump correctors are the third with 55.67cm which is less than 57.50cm with libero, while 60.20cm center jumpers have the best jump result. Test with block jump, recipients and followers achieved the same result with 40.50cm, the lowest score achieved with correctors with 39.67cm; while central blockers with 45.20cm and finally libero players have reached the jump height of 45.50cm.

Table 1. Descriptive parameters of motor skills variables and those based on positions in the match

	Passser	**Receiver**	**Corrector**	**Central block**	**Libero**
Body length	171.50 ± 0.71	173.50 ± 2.04	179.17 ± 6.25	178.60 ± 4.79	165.50 ± 0.71
Body weight	63.50 ± 5.37	68.88 ± 9.69	66.87 ± 4.70	65.36 ± 6.70	63.15 ± 3.75
Newtest	37.05 ± 1.06	40.15 ± 9.27	37.33 ± 0.21	43.50 ± 10.05	41.60 ± 1.13
Jumping strike	51.50 ± 7.78	54.25 ± 3.86	55.67 ± 4.93	60.20 ± 6.22	57.50 ± 12.02
Block jumping	40.50 ± 6.36	40.50 ± 3.32	39.67 ± 4.72	45.20 ± 4.95	45.50 ± 4.95

Table 2. Differences in body height between volleyball players by position in the match

	(I) Position	**(j) Position**	**Mean difference (i-j)**	**Std. Error**	**Sig.**
Body height	Libero	Passer	-6.00	4.083	1.000
		Receiver	-8.00	3.536	.449
		Corrector	**-13.67***	**3.727**	**.037**
		Blocker	**-13.10***	**3.416**	**.028**

5. DISCUSSION

The results of this work on morphological variables are similar to the results of other research (Miguel Martín-Matillas et al., 2013). Results in vertical jump tests are not as expected in relation to playing positions, so to jump up from the ground, without the help of hands, the lowest jump was achieved by passers and correctors, then the receivers rank less than the liberos, and the central blockers have the best jumping score. In offensive rebounds, passers have the lowest rebound value, followed by the receivers, he third in turn are correctors which is lower than libero players and with central blockers who have the best result.

In the defensive jump, the receivers and passers had the same result, the correctors had the worst score, while the central and libero blockers had similar jump heights; a similar result was given in the research studies of Sattler et al. (2012).

Offensive and blocking jump results are not based on expectations, as correctors have achieved low jump scores, while libero players have had the best results, which is not the case in other studies in developed volleyball countries (Slinde et al. al., 2008).

6. CONCLUSIONS

Based on the results obtained in this paper, it can be concluded that for good results in volleyball it is necessary to pay attention to the morphological parameters, especially the motor tests of vertical jump style. In the sample of this paper the results obtained at body height are similar to similar research, whereas in vertical jump tests, the results do not match those of similar research, based on the positions in the match. Morphological status and level of motor

skills are very important for achieving high level results in volleyball, (Tahiraj, 2009), so the focus should be on new generation volleyball schools with a professional curriculum and effective exercise, to achieve higher and more effecient results.

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