

# Body composition and relationship to the kinematics analysis of the overwhelming serve skills in the beach volleyball of the Players of the Libyan national team

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**Abstract**—four healthy young male subjects (age 20-25) Beach volleyball is one of the most modern games in the modern era. It has been widely distributed throughout the world and has been prominent in all the competitive magazines (Olympic, World, Arab and local) as well as leisure magazines because it does not need many equipment's and tools. It is related to fun and pleasure. Ages. The biomechanical analysis is an effective tool between the researcher and the trainer to investigate the facts and helps to develop the movement and knowledge of the tactic and brings closer the image of the model movement and thus it contributes to the knowledge of many of the motor sections of the human body, which is important to determine the motor characteristics of athletes with higher levels to high achievement, Athletes with modest levels to see the obvious motor differences in their levels of improvement. As the physical structure is important in motor performance in general and sports in particular, and kinetic analysis is one of the scientific means through which to raise the level of mathematical achievement and analysis based on scientific facts through which access to the understanding of mathematical skills. The researchers noted that the level of elite players compared to the level of players in the Arab and regional countries is advanced, although this game has not received much attention. By interested and researchers in general and in the field of kinetic analysis in particular

An exploratory study was conducted to ascertain the appropriate time for imaging, camera positioning, training of assistants, processing of imaging sites and procedures for analysis of body composition. The researchers selected the research sample in a deliberate manner, and the sample size reached (4) players who have the condition of representing the national team in the game. The research methodology requires the use of the descriptive approach for the purpose of the research and its procedures. The researchers used modern techniques in kinematic analysis because it is the closest way to solve the study problem.

**Keywords**— *Body composition, kinematics, serve skills, beach volleyball*

## I. INTRODUCTION

Beach volleyball is one of the newest games in the modern era where it has enjoyed wide spread throughout the world and has occupied a prominent place in all competitive magazines (Olympic, international, Arab and local) as well as recreational magazines for lack of need for many equipment and tools and related to the nature of fun and pleasure and practice for both sexes and at different ages.

With the recent development of all sports activities, it has become difficult for sports training professionals to follow

everything that happens, and the competition has shown the importance of studying the skill in a more detailed way to identify their exact characteristics among the factors that hinder the success of any dynamic performance. It comes only through the precise knowledge of all the information surrounding this performance, whether quantitative information or how this increase in this ability to excel is reflected in the handling of the superior motor performance that differentiates between individuals in the field of sports.

It is well known that the requirements for the modernization and development of sport in contemporary society should take the data of scientific research in the fields of physical education and sports sciences. The modern era is characterized by a great scientific renaissance in the field of sport, which has made it a prominent place in all societies, due to its deep historical roots, as a social system with historical origins and social, economic and psychological origins.

Volleyball is a collective activity characterized by a variety of sit-down skills, including defense and attack to achieve the best results and reach high levels using precision in the basic skills: (transmission, reception, passing, setup, attacking, fender, pitch defense) [1].

Biomechanics is considered in the forefront of science that is interested in the study and analysis of human motor performance, with the aim of reaching the most suitable mechanical solutions for the problems for research and study, and circulating the information gained about the art of performance more appropriately, which serves the art of mathematical performance, adds [2]. that most countries of the world have developed the biomechanics of mathematical movements within the framework of mathematical approaches, linking them as a single unit to the science of motion science. [2]. As the importance of biomechanics research in modifying and developing the performance of many mathematical skills is the basic duties of biomechanics in the field of sports in analyzing, clarifying, modifying and improving the technical and individual performance methods of different games, whether in the stages of learning or training to maximize efficiency, the bottom line is that the essence of the academic subject of biomechanics is to study the technical performance of the movement and develop the dynamics of models, thus contributing effectively to the modern development in the field of physical education, sports and science. .

[2]. of Engels states that biomechanics research human and animal movement from the point of view of mechanics, solve problems related to the research of complex movements through scientific study [2]., and specialists in the fields of the fields of movement sciences old and new show us the great difference between the skill level exercised by the players to achieve a certain goal according to the concepts that prevailed at the time, and the development of skills. This development is due to the skills of adequate knowledge of the principles and mechanical foundations associated with the movement of the

player's body, which is one of the key factors in the success of performance development methods. [3]

Biomechanical analysis is an effective tool between the learner and the trainer to investigate the facts, and helps to develop the movement and know its tactics and brings closer the image of the typical movement [4] and thus contributes to the knowledge of many dynamic sections of the human body, which is important to determine the motor characteristics of athletes with high levels to achieve high achievement, as well as to analyze the movements of athletes with modest levels to know the dynamic differences of the human body, which is important for determining the motor characteristics of athletes with high levels to achieve high achievement, as well as analysis of the movements of athletes with modest levels of knowledge of the dynamic differences. clear in their levels to improve them. (Shaker Q., 1988, page 26)

[5] indicates that kinematic analysis plays an active and influential role in the application of kinematic conditions, such as the different speed of movement of body parts, distances and increased movement, which changes with the movement of projectiles.

[6] states that identifying the mechanical aspects of sports movements is the best way to achieve kinetic goals and the possibility of developing them. Human movement is characterized by mechanical characteristics, and its observance when applying the kinematic laws is critical to the upgrading of the motor level, which means that knowledge of the characteristics of the optimal technique of any movement must reflect the optimal use of the kinematic laws in the light of preparations and characteristics Biomechanical in the motor system. [7]

The body's components are usually divided into fatty and non-greasy mass, including muscles, bones, minerals, connective tissues and cartilage [8]

Since the movement of the body is produced by muscles, which require energy, there is an overlap between physical activity, body weight, physical structure and energy spent. To move, muscles and energy stored in body fat are used. Excess weights in some athletes are related to body fat and limit activities such as running. Therefore, body weight, physical makeup and physical activity are the function of movement, age and environment [9].

The overwhelming transmission is a direct offensive form that has a major impact on volleyball, and its appearance dates back to 1955 in Poland, while others believe that its appearance was in the 1960s and specifically in 1960. International championships held in the past years, as its use became familiar to many men's teams, as it was of outstanding importance and value during the Olympic Games in Los Angeles (1984) when the Brazilian team managed to achieve second place in that tournament through good and well-developed use For the sending of his players[10].

In addition, teams that won the top four at the Atlanta Olympics (1996) used overwhelming transmissions by 50 percent. Compared to the 1992 Barcelona Olympics, the percentage of teams using overwhelming transmissions (25%) was 25 percent. Only then, this form of transmission began to be used frequently by teams with high levels and the method of beating overwhelming according to the physical, physical and skill specifications of volleyball players, as these specifications are

essential and important for learning the overwhelming transmission, as well as the implementation of this transmission requires the strength of the muscles of the legs to jump and the muscles of the abdomen and back to arch the body behind and in front and muscles shoulders and arms to strike until it is carried out accurately and accurately[11].By following the researcher for the participation of the Libyan beach volleyball team in the Arab and regional championships as well as the recent participation in Pescara 2015 and the local competitions of the elite in Misrata city 2016, the dras noted that the level of elite players compared to the levels of players in the Arab and regional countries is advanced Although this game has not received much attention from interested people and researchers in general and in the field of kinetic analysis in particular.

Since physical composition is important in motor performance in general and sports in particular, as well as motor analysis, it is one of the scientific means by which it is possible to raise the level of mathematical achievement and analysis based on scientific facts through which the understanding of mathematical skills can be achieved.

The skill of transmission is also an important blow and an influential part, usually the one that is sent in the game of beach volleyball is a reason to win the game an disused as a tartto attack the weaknesses of the opposing team, a skill that needs to be learned by Center especially throw the ball up and arm movement which requires high compatibility.

By informing the researcher of studies that dealt with the performance of the overwhelming transmission in the game of beach volleyball, it is that most studies have not been studied by the study of the kinematic analysis and its relation to the physical composition in the performance of the overwhelming transmission.

The researcher also believes that this study is useful in scientific research in terms of providing a future database for the study of research interested in motor analysis in general and the analysis of the kinematic in particular and the service to the study community of teams, teams, coaches and interested.

Despite the popularity of volleyball, the mechanical understanding of the forces causing the movement in particular [12]. is still only a little research and studies interested in collecting and explaining information related to Kinetical and Kinematical in volleyball [1].

The motor system of the human body has many mechanical properties that help it to apply mechanical motor performance, which provides it with the ability to achieve the ideal technique characteristics of any motor skill or performance of a mathematical movement.

Despite the importance of this skill and the extent to which it achieves the increased chances of winning for many teams to the extent that it reaches this skill it sometimes serves as the only key to breaking The strength of the defense of the opposing team, but the scientific interest of the elite players who are glorious for this skill in general is very limited at the local level. The researcher also believes that the importance of this study provides a benefit for scientific research by providing a database of future scientific research that is concerned with the analysis of motor in general and the mathematical analysis in particular in the game of beach volleyball and other games and also provides a service to the study community of teams, teams, coaches and interested. The lack of a clear understanding of the

biological characteristics of the biological characteristics of the physical composition of elite players as well as the biomechanical characteristics of the performance of the overwhelming transmission skill in beach volleyball, and the researcher was invited to try to identify the importance of the physical composition of players and the kinematic variables (quantification) affecting the performance of the overwhelming transmission skill and try to clarify the positive and negative aspects. With the kinematic analysis in the performance of the overwhelming transmission skill in the beach volleyball of the Libyan national team players.

This may be due to the lack of a database that helps the trainer improve the performance of this skill, thus reaching the ideal in the performance of this skill and gaining performance and practice experience in different performance environments, especially at the level of national teams and world championships

## II. AIMS AND HYPOTHESIS

### A. Aims:

The study aims to identify:

1. The relationship of the variables of the physical composition to the performance of the skill of the overwhelming transmission in beach volleyball.
2. Some kinematic variables have to do with the overwhelming transmission skill in beach volleyball.
3. The nature of the relationship between the physical structure of some kinematic variables of the skill of the overwhelming transmission in beach volleyball

### B. Research assignments:

Through theoretical readings and previous studies, the research assumptions could be formulated below:

1. There is a statistically significant correlation between physical composition and the performance of the overwhelming transmission skill in beach volleyball.
2. There is a statistically significant correlation between some kinematic variables and the performance of the overwhelming transmission skill in beach volleyball
3. There is a statistically significant correlation between the physical composition of some kinematic variables of the overwhelming transmission skill in beach volleyball.

## III. METHODS

### Search procedures

#### A. Research methodology:

The methodology of the study requires the use of the descriptive method (case study) to suit the purpose of the study and its procedures, and the researcher has used modern techniques in motor analysis because it is the closest way to solve the problem of the study.

#### B. Research Community:

The study community represents the study community in the players of the Libyan national team in the game of beach volleyball.

#### C. Sample search:

The researcher selected the sample of the study in the deliberate way, and the sample size (4) players who meet the requirement to represent the national team in the game.

Table 1. illustrates the description of the study sample

	age	Body mass	height	Training age
	Year	kg	cm	Year
Mean	25.5	85.1	191.33	7.5
Standard Deviation	3.87	7.52	6.249	0.58

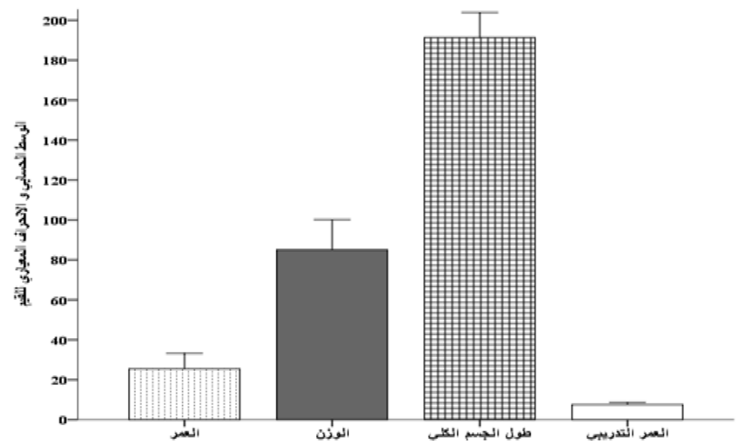


Fig 1. Shows the basic variables of the study sample

#### D. Analyses and treatment of results

It is shown from table 1 and Fig 1:

The average age of players was 25.50 years  $\pm$ 3.87 years and the average weight of the players was 85.10 kg  $\pm$ 7.52 kg and the average total length of players. 191.33 cm  $\pm$ 6.249 cm and the average training age for players is 7.50 years  $\pm$ 0.58 years

Sample selection conditions:

1. To be among the players who participated with the team.
2. Exclude a player who is absent or injured.
3. The Libyan Volleyball Federation has agreed to conduct the research.
4. Athletes' commitment to restricting tests.
5. Do the experiment in the club candel because of the presence of a playground and tools etc.
6. Players are willing and willing to do the search according to the program

### E. Treatment of Data

#### 1) Tools used to search:

- computer.
- JVC video camera with a speed of (500) frames / s. High Definition (HD)
- Tripod camera holder.
- Phosphorous markers placed on the joints of the players.
- Program for analyzing movements and extracting specially prepared results.
- Specialized motor analysis program.
- A square drawing scale of 50 cm x 50 cm.
- Volleyball and volleyball network with legal height (2.43 meters).
- InBody 720 Body Composition Analyzer

#### A. Statistical treatments:

The Statistical Package for the Social Sciences (IBM©SPSS© version 24, 64 Bit edition (SPSS Inc, Chicago, IL test was used to determine if subjects ate or drank before sunrise.

### IV. VIEW AND DISCUSS RESULTS

This result of the body composition and its relation to the kinematics analysis of the skill of overwhelming transmission in beach volleyball.

Table 2.Shows the kinematics variables of the study sample

	angle of shoulder	angle of elbow	angle of pelvis	angle of knee	angle of release
	°	°	°	°	°
<b>Mean</b>	178	63.67	148.33	142	5.33
<b>Median</b>	178	63.67	148.33	142	5.33
<b>Standard Deviation</b>	1.41	11.44	14.64	16.31	0.47

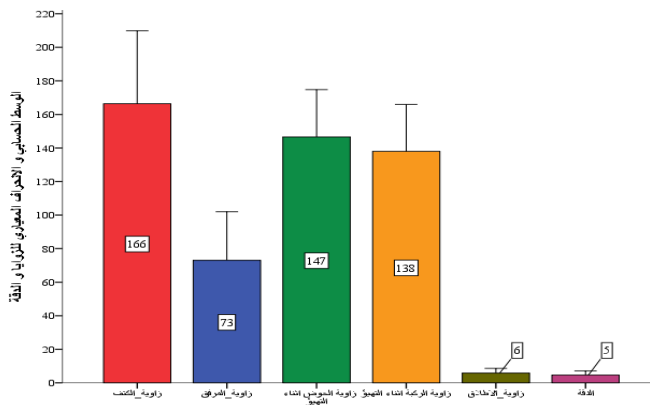


Fig 2.Shows average and Standard Deviation for angle and resolution variables.

#### It is shown from table 2 and Figure 2:

For the shoulder angle: the average weight of the players was  $178.00^{\circ} \pm 1.41^{\circ}$ , the average attachment angle for players was  $63.66^{\circ} \pm 11.44^{\circ}$  and the pelvic angle while preparing for players  $148.33^{\circ} \pm 14.64^{\circ}$  and the angle of the knee while preparing for players  $142.00^{\circ} \pm 16.31^{\circ}$  and , average starting angle for players  $5.33^{\circ} \pm 0.47^{\circ}$

Table 3.Shows the kinematic variables of the study sample

	Angular velocity of arm	Pelvis's angular velocity	Ball's velocity	Jump's height	Max height of ball at strike
	/s°	/s°	m/s	cm	cm
<b>Mean</b>	642.62	127.8	31.75	0.23	2.29
<b>Median</b>	642.73	126.7	32.58	0.22	2.34
<b>Standard Deviation</b>	87.78	13.81	2.96	0.02	0.22

#### Table 3 shows the following:

For the strike arm's angular velocity variable: The average speed angle of the strike arm for players was  $642.62^{\circ}/s \pm 87.77^{\circ}/s$  and the average pelvis speed for players was  $127.80^{\circ}/s \pm 13.81^{\circ}/s$  and the average ball speed for players was  $31.75 \text{ m/s} \pm 2.96 \text{ m/s}$  and the average jump height for players  $0.23 \text{ cm} \pm 0.02 \text{ cm}$  and average maximum height of the ball at the moment of collision for players  $2.29 \text{ meters} \pm 0.22 \text{ meters}$ .

Table 4. Shows the variables of the physical composition of the study

	BMI	SM M	FAT %	Total Water	Fitness Score	WH R	Metabolic Rate
Mean	23.23	45.73	6.05	57.25	89.75	0.87	2061.25
Median	23.15	47.3	5.95	58.45	89	0.88	2096.5
Standard Deviation	1.31	4.48	1.36	5.24	5.44	0.01	159.57

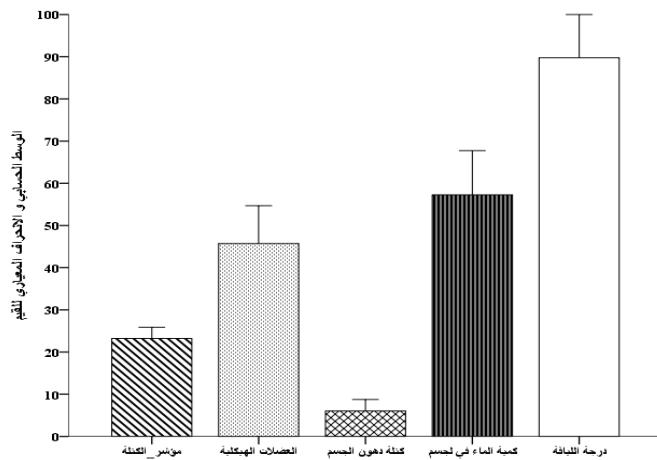


Fig 3. Average and Standard Deviation shows values

For the block change: The average mass index for players was 23.23 kg/m<sup>2</sup> ±1.31 kg/m<sup>2</sup> median value was 23.15 kg/m<sup>2</sup> average skeletal muscle index for players 45.73 kg/±4.48 kg and average body fat mass for players 6.05 kg/±1.36 kg and the average amount of water in the body for players is 57.25 liters±5.24 liters and the average fitness score index for players is 89.75 degrees ±5.44 degrees and the average pelvic ratio for stump suppter for players is 0.87 ±0.01 and the average for players is 2061.25 thermal price ±159.57 thermal price.

Table 5. Shows the correlation matrix of the basic variables and the physical composition of the study sample

WHR	Fitness Score	Total Water	FAT %	SMM	BMI	Training Age	Height	Body Mass	Age	Body Mass
								0.102		Body Mass
								0.801	-0.512	Height
							0.263	-0.254	-0.745	Training Age
						-0.727	0.125	0.694	0.785	BMI
					0.828	-0.406	0.66	0.978	0.305	SMM
				0.121	-0.456	0.638	0.826	0.324	-0.906	FAT %
			0.145	0.981	0.796	-0.264	0.671	0.965	0.286	Total Water
		0.833	0.427	0.824	0.979	-0.584	0.149	0.697	0.767	Fitness Score
	0.823	0.98	0.122	0.999	0.828	-0.408	0.66	0.978	0.304	WHR
0.976	0.835	0.999	0.141	0.977	0.795	-0.255	0.666	0.961	0.289	Metabolic Rate

There is a positive correlation in relation to the relationship between the skeletal angle variables and weight: the value of t = 0.978, which is a statistically significant at P>0.05

There is a relatively positive correlation in relation to the relationship between the fat mass variables and age where the

value of t = -0.906- is a statistically significant at P>0.05

There is a positive correlation in relation to the relationship between the two variables of the amount of water in the body and the weight where the value of t = 0.965, which is a statistically significant at P>0.05

There is a strong positive correlation in relation to the relationship between the two variables of the amount of water in the body and the skeletal muscles: the value of t = 0.981, which is a statistically significant at P>0.01

There is a positive correlation for the relationship between the fitness grade variables and the mass index: the value of t = 0.979, which is a statistically significant at P>0.05

There is a positive correlation in relation to the relationship between the pelvic ratio and weight variables: the value of t = 0.978, which is a statistically significant at P>0.05

There is a strong positive correlation in relation to the relationship between the pelvic ratio variables of the stump and the skeletal muscles: the value of t = 1.000, which is a statistically significant at P>0.01

There is a positive correlation in relation to the relationship between the pelvic ratio variables and the amount of water in the body: the value of t = 0.980, which is a statistically significant at P>0.05

There is a positive correlation in relation to the relationship between the metabolic rate and weight variables: the value of t = 0.961, which is a statistically significant at P>0.05

There is a positive correlation in relation to the relationship between the metabolic rate variables and the skeletal muscles: the value of t = 0.977, which is a statistically significant at P>0.05

There is a strong positive correlation in relation to the relationship between the high metabolic rate variables and the amount of water in the body: the value of t = 1.000, which is a statistically significant at P>0.01

There is a positive correlation in relation to the relationship between the metabolic rate variables and the pelvic ratio of stump: the value of t = 0.976, which is a statistically significant at P>0.05

Table 6. Shows the correlation matrix for the kinematic variables of the study sample

10	9	8	7	6	5	4	3	2	1	Variables
									0.91	angle of shoulder
								0.80	1.00	angle of elbow
							0.26	-0.25	0.43	angle of pelvis
						-0.73	0.13	0.69	1.00	angle of knee
					0.83	-0.41	0.66	0.98	0.87	angle of release
				0.12	-0.46	0.64	0.83	0.32	0.11	angular velocity of the strike arm
			0.15	0.98	0.80	-0.26	0.67	0.97	0.59	angular velocity of pelvis
		0.83	0.43	0.82	0.98	-0.58	0.15	0.70	0.77	ball's velocity
	0.82	0.98	0.12	1.00	0.83	-0.41	0.96	-1.00	0.95	jump's height
0.58	0.94	0.94	-0.99	0.72	0.28	-0.75	0.33	-0.51	0.28	ball's height at strike

It is clear from Table 6 the correlation coefficients between the study variables were as follows:

There is a relatively bad correlation to the relationship between the attachment angle and shoulder angle variables: the value of t = -0.968-, which is a statistically significant function at 0.

There is a strong, bad correlation in relation to the relationship between the pelvic angle variables of the stump and the angle

## V. DISCUSSION OF RESULTS

of the attachment: the value of  $t = -0.981$ , which is a statistically significant function at  $P > 0.01$

There is a strong positive correlation in relation to the relationship between the starting angle and the shoulder angle variables: the value of the  $r = 1.000$ , which is a statistically significant function at  $P > 0.01$

There is a relatively bad correlation to the relationship between the starting angle variables and the angle of the attachment: the value of  $r = -0.968$  is a statistically significant function at  $P > 0.05$

There is a strong  $P > 0.05$  positive correlation in relation to the relationship between the starting angle variables and the angle of the pelvis during the preparation: the value of the  $R = 0.998$ , which is a statistically significant function at  $0.01 P >$

There is a relatively bad correlation to the relationship between the two angular velocity variables of the strike arm and the angle of the attachment: the value of  $t = -0.963$  is a statistically significant function at  $P > 0.05$

There is a positive correlation in relation to the relationship between the two variables of the velocity sum of the ball and the angle velocity of the strike arm: the value of the  $r = 0.917$ , which is a statistically significant function at  $P > 0.05$

There is a positive correlation for the relationship between the jump height and shoulder angle variables: the value of the  $r = 0.945$ , which is a statistically significant function at  $P > 0.05$

There is a strong, bad correlation in relation to the relationship between the jump height variables and the angle of the attachment: the value of the  $t = -0.997$  is a statistically significant function at  $P > 0.01$

There is a positive correlation for the relationship between the jump height variables and the angle of the pelvis during the preparation: the value of  $r = 0.962$ , which is a statistically significant function at  $P > 0.05$

There is a positive correlation for the relationship between the jump height variables and the starting angle: the value of  $r = 0.945$ , which is a statistically significant function at  $P > 0.05$

There is a strong positive correlation in relation to the relationship between the jump height variables and the angular velocity of the strike arm: the value of the  $r = 0.982$ , which is a statistically significant at  $P > 0.01$

There is a strong, bad correlation in relation to the relationship between the two variables of the maximum height of the ball for the moment of collision and the angular velocity of the pelvis: the value of  $t = -0.986$  and is a statistically significant function at  $P > 0.01$

There is a positive correlation in relation to the relationship between the two variables of the maximum height of the ball for the moment of collision and the velocity outcome of the ball: the value of the  $r = 0.938$ , which is a statistically significant function at  $P > 0.05$

There were statistically functioning correlations between the rest of the variables.

### Discussion of the first hypothesis: which states:

"There is a statistically significant correlation between physical composition and the performance of the overwhelming transmission skill in beach volleyball"

For the changes of the physical composition there is a positive correlation between both the variables of the angle of the skeletal muscles and the rate of metabolism and weight and the variables of the amount of water in the body and weight and the variables of the weight and the pelvic ratio of the stump variables the amount of water in the body between the variables of the pelvic ratio of the stump and the amount of water in the body and the amount of water in the body and the structural muscles The fitness and mass index variables between the pelvic ratio of the baldness, the skeletal muscles, the pelvic ratio of the stump, the rate of metabolism, the skeletal muscles, the high rate of metabolism and the amount of water in the body. There is also a bad correlation between the fat mass and age variables, which is consistent with the studies of Román et al., 2012; The government's support for the government's work in the country is a clear and clear lyc-for-state development. The government's support for the government's work in the country is a key objective of the Government's work. [9]. The researcher explains the emergence of a high correlation between the kinematic variables with the physical composition on the direction of the appropriate ball path to achieve the main goal of the transmission process, and this relationship was the result of experience and the time of practice in which the individuals of the research sample, which led to this variable in achieving the mechanical goal of this skill, it is a variable that expresses the real path taken by the tool after starting as the starting point is at a higher level than the surface of the ground and this gives a field to hit the ball at an appropriate angle of the network where it falls in the net where it falls in the A suitable place for it according to the perception of the strike player and his experience in this field and this made this variable have a high association with the physical composition of the players where the muscular physical composition (important in uplifting and beating strongly) plays an important role in the performance of skill par excellence. "The correct height of the ball is the point at which the sender's hand is met when your arm is fully stretched up and at this point the ball will be in a state of silence when you hit it, so your chance of making your mistakes is lower, but if you throw low, you will be disabled." For the performance of the movement well because of your inability to extend your arm as the higher toss is bad for your timing, as you will wait until the ball falls down and therefore can be bitter at the right height to throw the ball so that it can fall to the ground in front of your right foot by a few inches, and if it is tossed A far-off ball forward, you may hit it inside the net due to the fact that the hand of the sent player will be at this time heading down when you follow your transmission, as if he throws the ball away back you will tend to perform a long hit may come out of the area send your opponent."

### Discussion of the second hypothesis, which states:

"There is a statistically significant correlation between some kinematic variables and the performance of the overwhelming transmission skill in beach volleyball."

For the kinematic variables and the performance of the overwhelming transmission skill, I found positive correlations between both the elbow angle variables, both the shoulder angle, the pelvic angle of the stump, the starting angle, the angle of the strike arm, the height of the jump, and the variables of the starting angle and the angle of the pelvis during the preparation and between the variables of the velocity of the ball and the angle of the strike arm and between the variables jump height and the angle of the shoulder and between the variables of jump height and the angle of the jump and For the angular velocity of the strike arm and between the two variables of the maximum height of the ball for the moment of collision and the angular velocity of the pelvis and between the two variables of the maximum height of the ball for the moment of collision and the sum of the velocity of the ball.

As for the reason for the statistically functioning expulsion relationship between the kinematic variables because achieving the best requirement for speed is that the tool has the maximum speed requires that the body's levers work on the movement and towards the desired target because the rapid movement carried out by the body's levers enables us to get the maximum strength Effective lying to the player in achieving the goal of movement, which is the ideal speed of the ball and this confirmed (Frank Abdul Karim 2004) that one of the most important factors achieving the high speed of the ball is the strength of the reaction of the good ground of the feet and compatibility in bending and extending the knees with consensus and high fluidity.

The speed of starting the ball also achieved a statistically significant association with the corner of the shoulder joints - elbow and forearm in order to get high speed of the ball the player works to increase the speed surrounding the arm aimed by increasing the radius of the arm aimed by the tide of the elbow joint at the moment of correction and match the speed of the It is a direct fit with the radius of the rotation where [6].stressed that the good technique of skill in addition to that the development of the level of motor transport contributes to the increase of the degree of performance evaluation as the dynamic transfer is the gradual movement of parts and joints in terms of the appearance of the exterior and that the reason for the graduality of movement is Total yield of driving power on the one hand and stimulating the muscles involved in the work in order to get the required strength on the other.

As for the reason for the relationship of the angle of the kick-off ball to the height of the starting point of the ball, we find that the higher the starting point the more the point of landing with the check-in point with the speed and angle of the kick- in the shooting activities prefers the shooters tall where it is directly proportional to the starting speed and reverse with the starting angle . [13].

The tide process is for the purpose of obtaining a high final speed that must be performed after the boot of a bending process in order to achieve the strength of the acceleration process. As for the reason for the relationship between the speed of the ball and the values of the performance of the skills is a logical result, because one of the most important mechanical factors and the foremost is the variable speed of departure and the higher the speed of departure the degree of evaluation of the required skill, whether it is a human body or a

tool, and the result of the tool skill is taught is the result Logical and objective, when achieving the best speed followed by the best result in the level of evaluation of the performance of the good where the speed of movement depends on the full knowledge of the technique, one of the methods of speed increase. [14].

## VI. CONCLUSION

In the light of what the results of the research showed and within the limits of the research sample used, and by presenting and discussing the results, the researcher reached the following conclusions:

1. The existence of a statistically significant correlation between the overwhelming transmitter and both the velocity outcome variables of the ball and the angle of the shoulder, the starting angle variable of the ball and the variable angle velocity of the strike arm.
2. Both the velocity score of the ball, the angle of the shoulder, the starting angle of the ball, the speed and angle of the strike arm were of great importance in the skill of the overwhelming transmitter.
3. There is a statistically significant relationship between the velocity of the striking arm angle and the starting angle with the variables of the physical composition.
4. Most of the sample members don't use the send-off skill as an offensive skill to win the game.

## VII. RECOMMENDATIONS

In the light of the conclusions reached, the researcher makes the following recommendations:

- Reliance on physical installation and motor analysis programs, which rely on scientific foundations for capacity development

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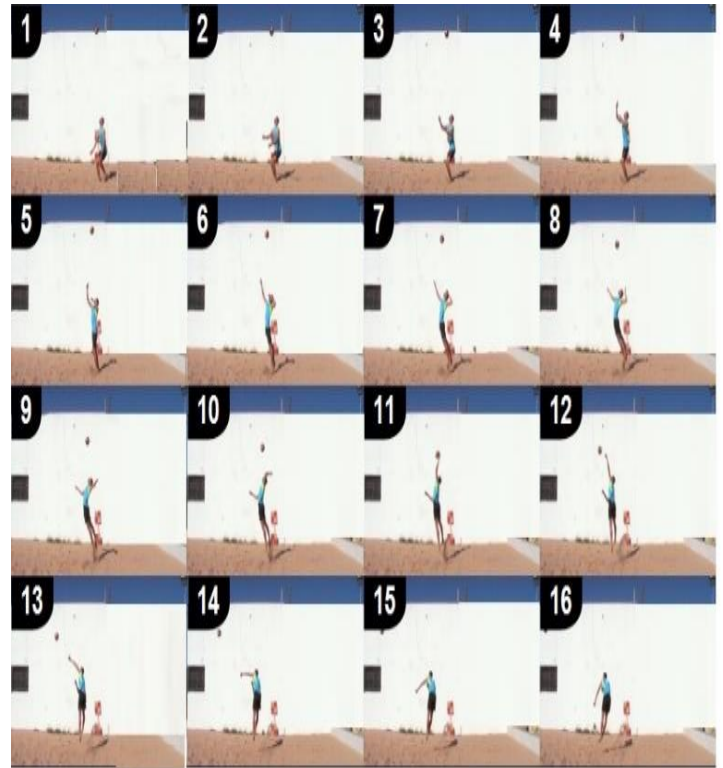


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## Preparing for your In Body Test

1. Do not eat for 3-4 hours before testing.
2. Do not exercise for 6-12 hours before testing.
3. Ensure access to both feet with removable footwear and socks.
4. Do not drink caffeine on the day of your test and be well hydrated.
5. Do not shower or sauna immediately prior to test.
6. Avoid putting lotion on hands and feet before testing



# InBody 720 Body Composition Analysis

I.D. InBody1234      AGE HEIGHT GENDER DATE/TIME 51 156.9cm Female 2010.05.15 08:34:19(224)      B. Hospital Doctor Lee

Component	Values	Total Body Water	Soft Lean Mass	Fat Free Mass	Weight	Normal Range
I C W (kg)	16.6	27.5	35.1	37.3	59.1	16.3 - 19.9
E C W (kg)	10.9					10.0 - 12.2
Protein (kg)	7.2					7.0 - 8.6
Mineral (kg)	2.63	osseous: 2.18				2.44 - 2.98
Body Fat Mass (kg)	21.8					10.3 - 16.5

Mineral is estimated

Component	Under	Normal	Over	Normal Range
Weight (kg)	55-70	70-100	100-205	43.9 - 59.5
S M M (kg)	21-30	30-40	40-50	19.5 - 23.9
Body Fat Mass (kg)	40-60	60-80	80-150	10.3 - 16.5

Obesity Diagnosis

Component	Under	Normal	Over	Normal Range
B M I (kg/m <sup>2</sup> )	15-18.5	18.5-25	25-35	18.5 - 25.0
P B F (%)	10-15	15-25	25-35	18.0 - 28.0
W H R	0.85-0.90	0.90-0.95	0.95-1.05	0.75 - 0.85

Lean Balance

Segment	Lean	Lean/Ideal	Lean %	Fat Mass	Segmental Edema	Edema
Right Arm (kg)	2.02	1.5	1.6(83%)	0.333	0.380	-0.46
Left Arm (kg)	1.94	1.5	1.6(83%)	0.334	0.381	-0.43
Trunk (kg)	17.7	11.7	11.7(240%)	0.350	0.398	-0.38
Right Leg (kg)	2.0	2.9	2.9(132%)	0.353	0.401	-0.33
Left Leg (kg)	1.92	2.9	2.9(131%)	0.355	0.403	-0.30

Segmental fat is estimated

DATE/TIME	Weight	SMM	Fat Score	ECW/TBW	Additional Data	(Normal Range)
09/05/17 09:21	65.7	20.6	27.0	62	0.399	Obesity Degree = 114%
09/08/20 08:53	63.5	19.4	25.8	63	0.399	BCM = 23.8kg
09/11/14 09:05	61.2	19.4	23.5	66	0.398	BMC = 2.18kg
10/05/15 08:34	59.1	19.6	21.8	68	0.397	BMR = 1176kcal
						1254 - 1451
						A C = 30.2cm
						AMC = 25.7cm

SBP = 112 DBP = 80 HR = 70

### Visceral Fat Area

121.5

### Nutritional Evaluation

Protein  Normal  Deficient  Excessive

Mineral  Normal  Deficient  Excessive

Fat  Normal  Deficient  Excessive

### Weight Management

Weight  Normal  Under  Over

SMM  Normal  Strong  Under  Over

Fat  Normal  Under  Over

### Obesity Diagnosis

BMI  Normal  Under  Over

BMI  Normal  Extremely Over

PBF  Normal  Under  Extremely Over

WHR  Normal  Under  Extremely Over

### Body Balance

Upper  Balanced  Slightly Imbalanced  Extremely Imbalanced

Lower  Balanced  Slightly Imbalanced  Extremely Imbalanced

Upper-Lower  Balanced  Slightly Imbalanced  Extremely Imbalanced

### Body Strength

Upper  Normal  Depleted  Weak

Lower  Normal  Depleted  Weak

Muscle  Normal  Muscular  Weak

### Health Diagnosis

Body Water  Normal  Under  Over

Edema  Normal  Slightly Imbalanced  Edema

Ure Pattern  Normal  Abart  Risky

### Weight Control

Target Weight 51.7 kg

Weight Control - 7.4 kg

Fat Control - 9.9 kg

Muscle Control + 2.5 kg

Fitness Score 68 Points

### Impedance

Z	RA	LA	TR	RL	LL
1kHz	179.6	392.7	26.8	106.8	316.1
5kHz	173.9	385.4	25.7	103.0	314.1
50kHz	137.3	352.5	23.0	282.3	289.8
200kHz	107.9	322.9	20.4	262.3	275.7
300kHz	297.4	311.5	19.1	258.1	267.8
1MHz	286.4	297.4	17.0	254.3	264.0

X	5kHz	12.0	11.6	2.1	9.0	8.8
5kHz	26.2	25.0	2.1	19.8	19.1	
200kHz	23.3	21.6	2.4	13.1	13.9	

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