The technical print of the Egyptian and Arab champions in pushing the shot put of circulation

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Thus, the biomechanical analysis is one of the most important and best scientific and practical methods to identify many mechanical variables that have a significant role in the effectiveness of performance and to reach the efficiency of the training methods. Used.

Talha Hossam El-Din (1994) states that one of the main pillars for raising the level of players and learners is the ability of the instructor or teacher to stand on the keys of motor performance through direct guidance in the right time during the performance of the sport to treat the motor track. (4: 14)

In view of the high speed of movement and difficulty and the identification of strengths and weaknesses in the path through the observation of the need for scientific diagnosis of all stages of movement performance, during the fragmentation of movements to the parts interrelated in order to understand the nature of these parts and the relationship between them taking into account that the fragmentation of movement is not This is a so-called kinetic analysis, which is a key to identifying variables and digital data very large and adequate for each part of the body at all moments and reflect the reality of the movement, and statistical analysis can deal with Large data and restrict and give indications about the phenomenon being studied. (5 : 3)

Amal Jabir (2008) points out that the analysis for the purpose of identifying the technical characteristics is one of the easiest types of analysis. The motor paths of the body parts are studied in terms of the mechanical characteristics of the skill. And to determine the most important of these characteristics by dealing with each point of the specified on the body equations (offset - speed - wheel). (1: 1)

The fingerprint was printed. The fingerprint was designed by the people's criminal newspaper and then the Voice Print to make non-traditional passwords and then Eye Print to be the key to the safes. The main objective of this development was the fingerprint that this relationship The distinctive characteristic of a particular person has been used in many ways of life. There are many skills in the field of sports, how to differentiate between one person and another in one of the skills, and although it goes through the same technical stages of that skill, but each one a method in the performance of this skill. (3)

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This approach combines biochemical analysis with statistical analysis on the basis that the body is a society consisting of a group of parts that share in harmony and harmony the performance of the phenomenon called the skill of payment In order to be judged on a phenomenon, the "skill of pushing the roll" is normal. The society of this phenomenon must fall under the "natural" curve, which is limited to ± 3, which leads us to study each part of the body Separately during the movement stages And the study of the body parts combined at various moments within the skill, and hence we can identify the areas of imbalance in the performance of the skill to push the ball from the rotation, whether part of the body parts or body parts combined at every moment of movement, and thus can assess the performance of players skillfully In the payment of the round of rotation, and we get the technical print through the proportion of the contribution of each part of the body parts within this skill.

research goals:

1- Identification of the technical print of the skill of pushing the shot put from the rotation.
2- Identify the level (ease - natural - difficulty) of the parts.
3- Identifying the player's method of performance in terms of the (characteristic - bearing - recessive) parts of performance.
4- Diagnosis of areas of strength and lack of performance.
5- Evaluation of the general level of performance and degree of (10) .

Search terms:

Technical Print :

Mahmoud Bassiouni (2016) defines the technical print as the unique motor performance that distinguishes a player from other players by possessing superior physical qualities and necessary motor skills . (3)

Biomechanical Statistical Analysis:

Is the statistical characterization of the parts of the human body and the fact that each part of the body is a participant sample in the phenomenon, which is called the skilled performance of the skilled, and passes through a number of data representing the cadres that make up the stages of movement.

Horizontal Analysis:

Is the statistical definition of the "torsion coefficient" for each part of the body alone during the stages of movement to identify areas of deficiency caused by parts of the body . (3)

Vertical analysis:

This is the statistical definition of the "torsion factor" of the body parts combined at each moment of performance to identify the areas of failure caused by the technical stages . (3)

Level of ease:

Is the right-curved area of the natural curve, which is greater than (± 3) whether for each single part or for the body parts combined.

Level of performance:

Is the middle region of the natural curve, which is limited to (± 3) whether for each individual part or for the body parts combined.

Difficulty level:

Is that area of the left-hand curve of the natural curve, which is less than (-3) whether for each single part or for the body parts combined.

Distinctive parts of the Method:

This is the statistical process that expresses the characteristic parts of the player's performance mode, which are greater than (± 3) for each individual part.

Participating Bearing Parts:

Is the process of statistical "overflowing" that reflect the parts of the body participating effectively, and depends on the performance of the player, and less than (-) for each individual part.

"Non-shared" recessive parts:

This is the statistical process, which expresses the parts that are actively involved and the player does not rely on performance. It is less than ± 1, and is close to zero (1 +> ×> 0) for each individual part.

General level:

Equals ((3 - average torsion ± C) / 3.)

Search procedures:

Research Methodology:

The researcher used the descriptive approach using the kinetic analysis and statistical analysis of the skill of pushing the shot from the field and track competitions to suit the nature of the study.

The research sample:

The sample of the research was chosen in a class-oriented manner on three players of the Egyptian shot put in the payment of the round and

the Arab championships and the Egyptian Federation of Athletics for the year 2018/2019.

Statistical processing of data:

1- The appropriate statistical relations were used to deal with the data of the included player (torsion coefficient - correlation relationship - contribution ratio) of the variable velocity variable of the different body joints.
2- Applied utilization of the technical print for the skill of pushing the shot put of circulation:
3- Diagnosis of areas of difficulty in the technical performance of the skill of pushing the shot put of circulation.
4- Identify the disabled parts of performance.
5- Identify the performance of the player.
6- Evaluation of the overall level of performance.

Operational Steps:

1- The motor kinetic analysis of three players through "biomechanical analysis."
2- Extract the characteristic variable and the motion switch of the different body points.
3- Statistical analysis "Torsion coefficient - the coefficient of spacing" of the body points.
4- Graph of the technical print to drive the round of "statistical analysis outputs."
5- How to read the technical print for each player.
6- Evaluation matrix for player performance.
7- Calculate the overall level of performance.

Fingerprint components:

The technical print consists of two stages (biomechanical analysis of skill - statistical analysis of body points) .

The analysis is the extraction of the dynamic variable of each part of the body during the stages of movement in the form of data; these data are considered the society of each moving part, and the parts are in (head - trunk - left and right arm - right and left) (Arm, forearm and palm), and the leg (leg, foot). The female community is composed of 4 parts.

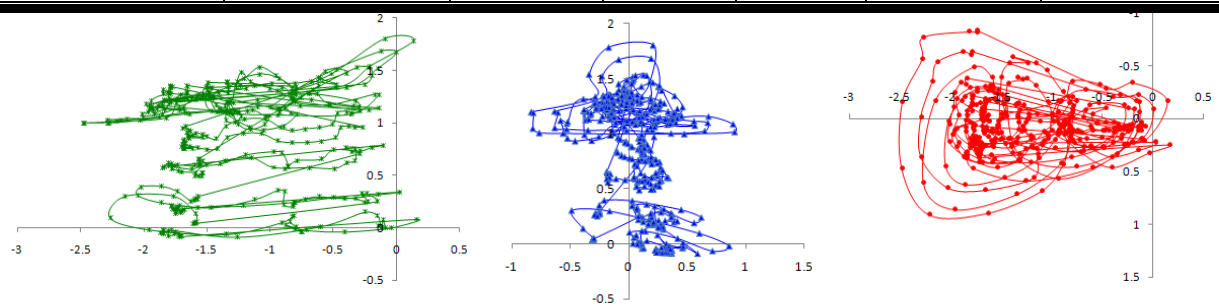
statistical analysis:

The torsion factor is extracted for each part of the body, and the role of each factor will be clarified within the print .

Table (1)

Characterization of the research sample "Egyptian and Arab heroines in pushing the shot"

Level of Digital Achievement M	Training Age year	Lifetime Year	Weight Kg	Length cm	place	Name
10.60	10	21	91	173	Foundation "Haikstep"	Amira Khaled Mahmoud Sayed Al-Askarah
10.90	10	17	93	177	Talaie Army	Rana Khaled Mahmoud Sayed
10.30	9	18	83	163	Al Ahli	Rima Ahmed Abdullah Nasr



from the side(xy) **From behind (zy)** **from above(xz)**

Figure (1) Motor paths of the body parts of the three dimensions - the player 1

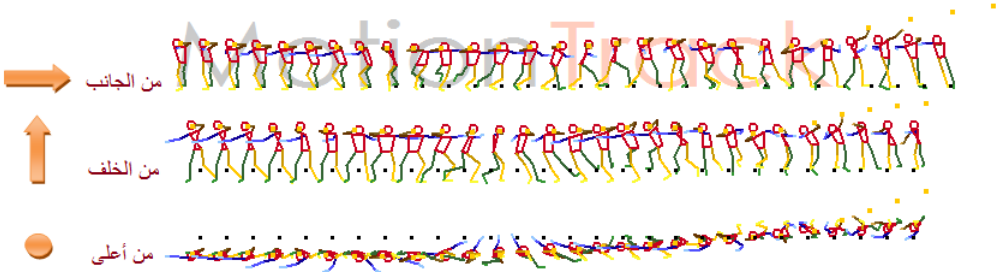


Figure (2) Model of the motor sequence after analysis of the threedirections - of the player 1

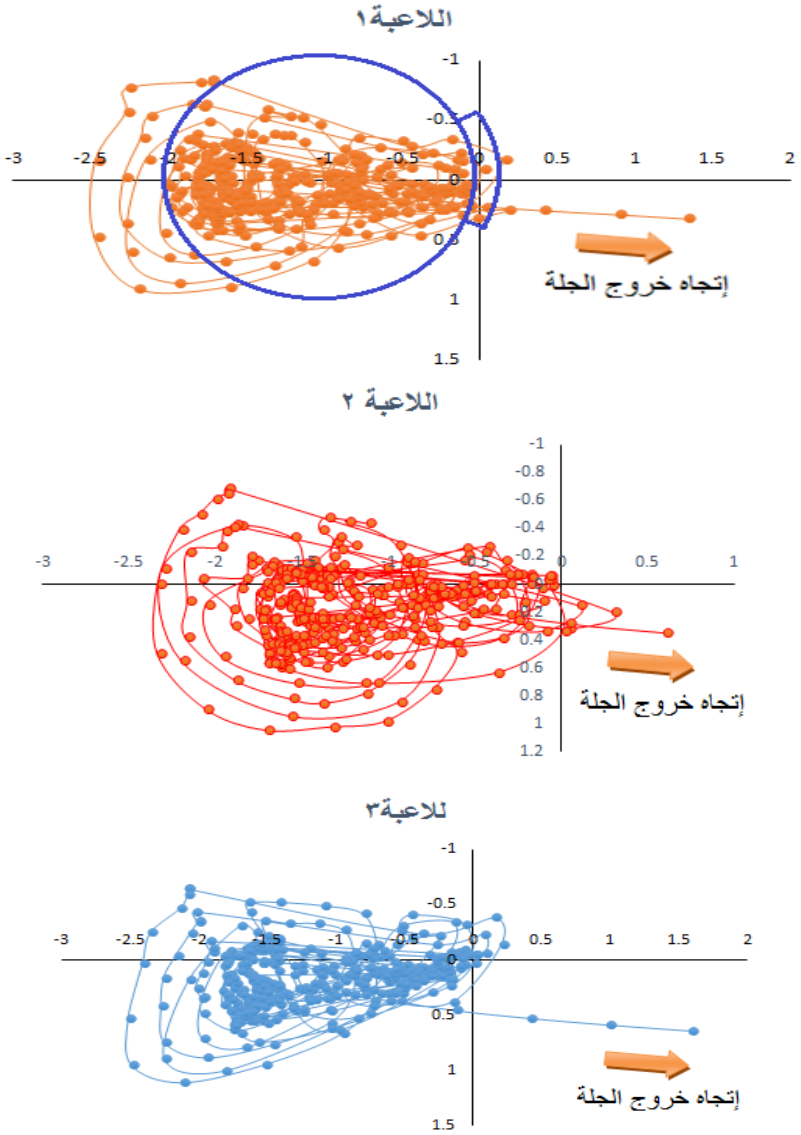


Figure (3) The motion path of the body parts and direction of the exit of the device during the stages of movement - For the heroes of Egypt and the Arabs in the payment of the round of rotation (from the top)

The first stage:

(A) Torsion factor:

The performance of the body parts is expressed between (± 3) during the performance of the skill (horizontal direction) of the relationship (1).

Torsion coefficient = (mean arithmetic mean) / standard deviation ..... (1)

The torsion factor can identify points (strength and weakness) in the body parts during the skill of pushing the shot.

The general level of performance, which determines the degree (ease - natural - difficulty) of performance, where the homogeneity of the movement of each part of the body performance during the stages of

movement in the payment of the round of rotation is recognized, and the closer the player from zero was the best performance, The normal performance limits are between (± 3) and if the input variable is increased from (ease - difficulty performance) .

Level of performance = ((3 - average sprain coefficient ±) / 3) ..... (2) . (4)

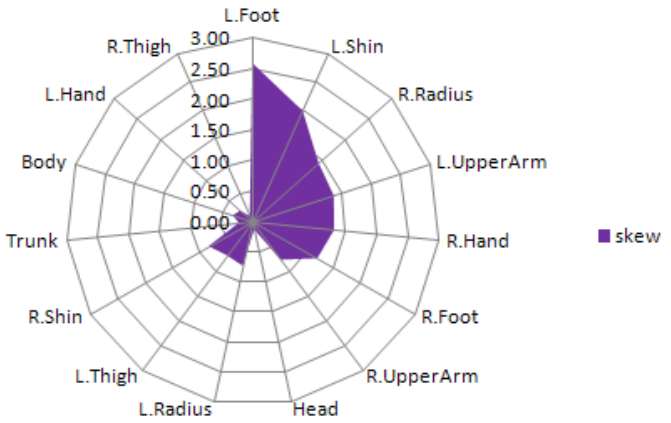


Figure (4) The first stage of the fingerprint curve coefficient - for the player 1

In which the homogeneity of the movement of each part of the body during the stages of movement is recognized in the propulsion of rotation as the player approached from zero was in the best performance and ends the limits of performance.

The second phase:

(B) Flattening coefficient (expressing vertical direction) :

Through which it can identify (the size of the parts involved for each type)

Coefficient of flattening = (arithmetic average - vein) / standard deviation ---------- (3)

To compensate in the following equation through which the value of each part of the body can be assessed for excellence, positive participation or negative participation within the skill performance.

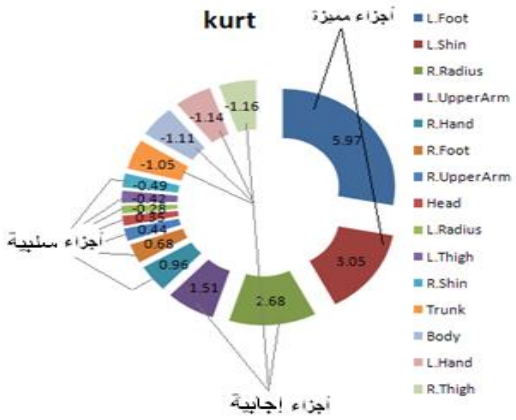


Figure (5) The second stage of the fingerprint coefficient of flattening - the player 1

At this stage, we can identify the state of the body parts in terms of (distinguishing the participation - participating positively - the excellence of passive (step down) parts of the body during the stages of movement in the payment of the round of rotation If the value of the coefficient of flattening of the part greater than ± 3, And if the value (less than ± 3 and greater than ± 1) represents the positive participation of the parts, and if the value of ± 1 expresses the negative participation of the parts.

Table (2)

Matrix (twisting - spacing) to read the technical print

Performance Difficulty> +3	**<+ 3Nature of Performance <-3**	**Ease of performance <+3**	**Factor Torsion** / **Factor Flattening**
		The first box	Characteristic <3±
	Box V		Positive participant> 3±
Box IX			Negative participant> 1±

From Table (2), the case of the part or parts can be explained during the stages of the movement in the motion of the rotation in terms of distinct participation with ease of performance as in the first box, or positive participation with the normal performance as specified in box V, The difficulty of performance as in the ninth box, in these places there is no fundamental problem for the player, but if it happens that there is a case of some parts in the other boxes in a problem that must be seen

Example: The technical print may show that the player has some features but is difficult to perform, or that the player has negative participation in some parts but is easy to perform.

Table (3)

Torsion and spacing coefficient For the parts of the body in the push of the round - the player 1

Case	Flattening coefficient	Torsion coefficient	Body points
Special	5.97	2.57	The left foot
Special	3.05	1.97	Left leg
Positive participant	2.68	1.42	Right forearm
Positive participant	1.51	1.36	Left humerus
Negative participant (retired)	0.96	1.31	Right palm
Negative participant (retired)	0.68	1.19	Right foot
Negative participant (retired)	0.44	0.77	Right humerus
Negative participant (retired)	0.35	0.13	Head
Negative participant (retired)	0.28-	0.74	Left forearm
Negative participant (retired)	0.42-	0.68	Left thigh
Negative participant (retired)	0.49-	0.80	Right leg
Positive participant	1.05-	0.22	the trunk
Positive	1.11-	0.33	center of gravity
Positive participant	1.14-	0.26	The left palm
Positive participant	1.16-	0.10	Right thigh

It is clear from Table (3) that all the points of the body in the splicing factor are normal when performing the skill of pushing the spindle from the rotation, where it is limited between (3 ±) indicating the normal performance of the skill. While there were distinct parts in the performance of the skill (left leg), (left foot) where the value of each (5.97), (3.05), and here are parts of participation in the performance (right forearm), (left arm) , (Trunk), (center of body weight), (left palm), (right thigh) where their value was (2.68), (1.51), (-1.05), (-1.11), (-1.14), (-1.16) (Left arm), (right foot), (right arm), (head), (left forearm), (left thigh), (right leg) where the value of each of them 0.96), (0.68), (0.44), (0.35), (-0.28), (-0.42), (-0.49)

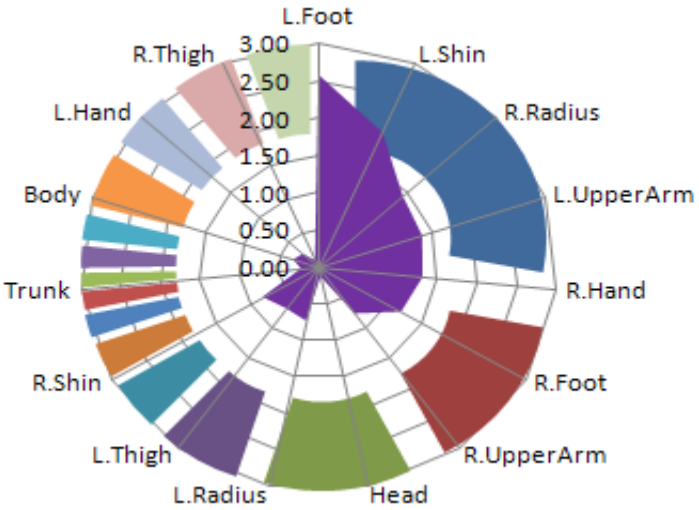


Figure (6) Technical print - the player 1

Table (4)

Matrix reading of the technical print - for the player 1

Rate Parts(%)	Difficulty of performance3- <	3+ <Nature of Performance <-3	Ease of performance+3>	Factor Torsion / Factor Flattening
14 %		Right foot Left leg		Featured participant <3
36 %		Right forearm Right humerus the trunk The left palm Right thigh		<1positive participant> 3
50%		Right palm Right foot Right humerus Head Left forearm Left thigh Right leg		Negative participant (retired) 1 ± <

Note: The center of gravity is removed from the ratio calculations because it represents the output of the motor performance of the body at a fictitious point, while the rest of the parts cause motor performance and are only 14 parts of the body.

From Table (4), the percentage of participation of the body parts can be determined by the spacing coefficient. (14%), which is more than (± 3), the positive and performing parts are (36%), and the negative (recessive) parts of the performance are close to zero or less than (± 1) with a percentage of (50%) .

From Table (4), the general performance level can be determined by the torsion coefficient, which determines (ease - difficulty) of performance, since the level of ease and difficulty level is given the value of the correct one. The level of performance can be determined by compensation in relation (2) The performance of the player 1 by (81.98%) thus the difficulty amount is (18.02%) .

Table (5)

Torsion coefficient of the body parts In pushing the shot put from the round - the player 2

Case	Flattening coefficient	Torsion coefficient	Body points
Special	7.99	2.55	R.Hand
Special	4.52	2.29	L.Foot
Positive participant	2.84	1.99	L.Shin
Positive participant	1.63	1.14	R.Radius
Positive participant	1.09	0.82	L.Radius
Negative participant (retired)	0.44	1.08	L.Thigh
Negative participant (retired)	0.36	0.94	L.UpperArm
Negative participant (retired)	0.20	1.24	R.Foot
Negative participant (retired)	0.07-	1.14	R.Shin
Negative participant (retired)	0.11-	0.37	L.Hand
Positive participant	0.15-	0.43	R.Thigh
Positive	0.43-	0.57	Body
Positive participant	0.77-	0.63	Trunk
Positive participant	1.03-	0.18	R.UpperArm
Positive participant	1.18-	0.16-	Head

Table (5) shows that all the points of the body in the splicing coefficient are normal when performing the skill of pushing the spindle out of the rotation, with a concentration of ± (3) indicating the normal performance of the skill.

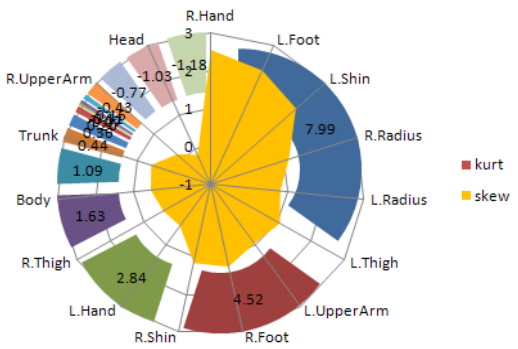


Figure (7) Technical print - player 2

Table (6)

Matrix reading of the technical print - for the game 2

Rate Parts(%)	Difficulty of performance< 3 -	3+ <Nature of Performance <-3	Ease of performance +3>	Factor Torsion / FactorFlattening
%14		R.Hand L.Foot		Featured participant <3
%50		R.Thigh L.Shin R.Radius L.Radius Trunk R.UpperArm Head		<1positive participant> 3
%36		L.Thigh L.UpperArm R.Foot R.Shin L.Hand		Negative participant (retired) 1 ± <

Note: The center of gravity is removed from the ratio calculations because it represents the output of the motor performance of the body at a fictitious point, while the rest of the parts cause motor performance and are only 14 parts of the body.

From Table (6), the percentage of participation of the body parts can be determined by the flattening coefficient. (14%), which is more than (± 3). The participative parts are positive and performance-bearing (50%). The participative parts (passive) of the performance are close to zero and less than (36%). In Table 6, the general performance level can be determined by the torsion coefficient (ease - difficulty) of performance. The level of ease and difficulty of performance represents the value of the correct one and the level of performance. During the compensation in the relationship (2) we get the level of ease of performance for the player 2 (18.41%), thus the amount of shortfall is (18.59%).

Table (7)

Torsion coefficient of the body parts In pushing the shot put from the round - the player 3

Case	Flattening coefficient	Torsion coefficient	Body points
Characteristic easy	11.94	3.31	L.Foot
Special	4.95	1.60	L.Hand
Special	4.84	1.62	L.Radius
Special	3.53	2.05	R.Foot

Follow Table (7)

Case	Flattening coefficient	Torsion coefficient	Body points
Special	3.40	1.92	R.Shin
Special	3.14	1.96	R.Hand
Positive participant	1.73	1.26	L.UpperArm
Positive participant	1.46	1.45	L.Shin
Positive participant	1.18	1.10	R.Radius
Positive participant	1.12	0.92	R.UpperArm
Negative participant (retired)	0.29	0.74	Head
Negative participant (retired)	0.27	1.04	L.Thigh
Negative participant (retired)	0.11	1.09	Trunk
Negative participant (retired)	0.40-	0.56	R.Thigh
Positive participant	1.04-	0.50	Body

It is clear from Table (7) that most of the points of the body in the spindle are normal when performing the skill of pushing the spindle, where ± (3) is restricted, indicating the normal performance of the skill except the parts (RFHand), LFHand, (3.37), (4.57), (6.10) respectively, positive and greater than (+3) indicating the ease of performance of these parts.

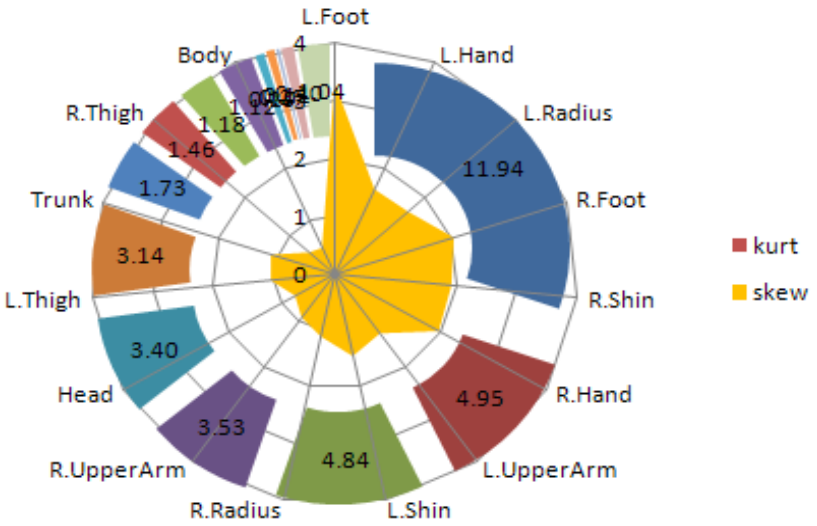


Figure 8 - Technical Print - player 3

Table (8)

Reading the technical print of the player 3

Rate Parts(%)	Difficulty of performance< 3-	3+ <Nature of Performance <-3	Ease of performance +3>	Factor Torsion / Factor Flattening
% 42		L.Hand L.Radius R.Foot R.Shin R.Hand	L.Foot	Featured participant <3
%29		L.UpperArm L.Shin R.Radius R.UpperArm		<1positive participant> 3
%29		Head L.Thigh Trunk R.Thigh		Negative participant (retired) < 1 ±

Note: The center of gravity is removed from the ratio calculations because it represents the output of the motor performance of the body at a fictitious point, while the rest of the parts cause motor performance and are only 14 parts of the body.

From Table (8), the percentage of participation of the body parts can be determined by the coefficient of flattening. (42%), which is more than (3), the positive and performance parts (29%), and the negative (recessive) parts of the performance were close to zero or less than (± 1), which was 29%

From Table (8), the level of general performance can be determined by the torsion coefficient, which determines (ease - difficulty) performance. The level of ease and difficulty of performance is given the value of the correct one and the level of performance can be identified. The level of ease of performance of the player 3 (80.98%) thus the difficulty level (19.02%).

Table (9)

areas of palaces and percentage of the participation of parts In the technical performance of the Egyptian champions in pushing the round of rotation

Rate Parts(%)	Areas of Palaces	Factor Torsion / Factor Flattening
% 50	Right palm Right foot Right humerus Head Left forearm Left thigh Right leg	Player 1

Follow Table (9)

Rate Parts(%)	Areas of Palaces	Factor Torsion / Factor Flattening
%36	Left thigh Left humerus Right foot Right leg left hand	Player 2
29%	The player 3 Head Left thigh the trunk Right thigh	Player 3

Table (9) shows that the parts of the performance deficit for each player were determined in a number of parts where the player 1 was the most deficient player in the body parts (7 parts) followed by the player 2 with the number of parts (5) and the player 3 with 4 parts. Note that the digital level recorded during the experiment (10.60), (10.90), (10.30) meters, respectively.

Table (10)

Skill level For the heroine of Egypt in pushing the round of rotation

Player 3	Player 2	Player 1	The player
80.98	81.41	81.98	Performance level
19.02	18.59	18.02	mistake percentage

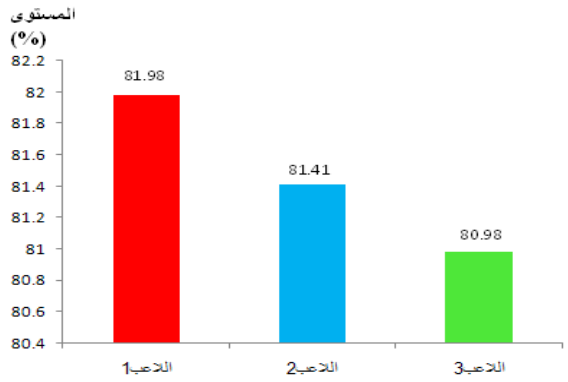


Figure (9) The level of performance of the Egyptian champions in the payment of the round of rotation

It is clear from Figure (9) that the level of performance of the Egyptian champions in the payment of the turnover of each player reached 1, 2 and 3 with a score of 18.02, (18.59) and (19.02) respectively. Two faces of one coin, that is, their sum equals the right one.

Table (11)

Ratio and type of parts involved In the skillful performance of the Egyptian champions in pushing the ball out of rotation

Player 3	Player 2	Player 1	The player / The ratio(%)
%42	%14	%14	The characteristic parts of the player's style
%29	%50	%36	Participating parts are positive
%29	%36	%50	Participating parts are passive (recessive)
%71	%64	%50	Total active participation

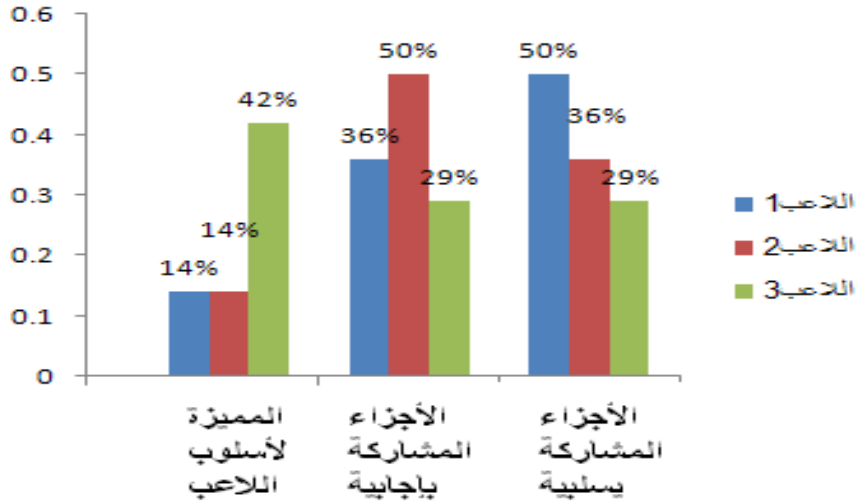


Figure (10) Percentage of the (positive - positive - negative) parts of the three players in the performance of the skill of pushing the shot put of circulation

Table (11) shows that the proportion of recessive parts of the performance exceeded 50% (36%) and 29% of the players respectively, indicating that the women perform the skill with less than half of their abilities. Although their skill level reached 81.98%, 81.41% and 80.98% respectively. In addition, the proportion of the participants was positive (36%), (50%), (29%) of the players respectively, and for the distinctive parts of performance has approached zero at the player (1, 3) and amounted to (14%), (14%), (42%), which indicates that each player is distinguished in one of the parts expresses his style of performance.

The player has no distinct style of performance, and player 3 has a performance style. The player 1 and 2 have the highest rating of the player 3 but with a slight difference, the player 3 is less than her peers.

Conclusions and recommendations:

Conclusions:

1 - The nature of the performance of all parts of the body of the player (1), does not tend towards ease or difficulty, while there are distinct parts and parts of the participation of positive, and parts of the participation of negative within the technical performance.

2 - There are errors or shortcomings in some parts, but the physical potential may compensate for that deficiency, for example the player (1, 2) has increased the lack of some parts, knowing that they are leaders of the digital level.

3 - What is wrong with a player may be an advantage in others.

4 - Although the Egyptian players are high levels, but they exercise skill (50%, 64%, 71%) of their potential respectively.

5- The technical print showed that excellence in performance does not mean excellence in the digital level. The percentage of the distinctive parts in the participation (14%, 14%, 42%) respectively, and the digital level of the three players (10.60, 10.90, 10.30) , We note that the player (3) has a technique in the performance of the artistic peers of the heroines, but the digital level is less than her colleagues.

6- The technical print showed that the digital level (81.98%, 81.41% and 80.98%) respectively, while the digital level of the players respectively (10.60, 10.90, 10.30) meters.

7 - Knowing the places of failure and strength in the skillful performance to push the roll out.

Recommendations:

1 - A training model based on the technical print for the performance of female athletes with special abilities.

2 - the need to repeat this model in other sports.

3 - Show the players with the hallmarks of the skill world - wide, and work a model for them compared to the local level, and knowledge of shortcomings and strength in performance.

4 - attention to physical preparation in light of the study of the technical print of performance.

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