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Study of some biomechanical variables for the skill of the frontal pneumatic pellet on the balance beam for female girls

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Abstract

The research aims to identify On Variables bio kinematics own for skill the heart aerobic front a aureus On device a model balance for young women. On a group of six Egyptian women's national team players of the same age and training level, the researcher relied on photographing and analyzing the skill to extract strengths and weaknesses for the players regarding the skill. Including the researcher concluded that swinging the arms forward high during the tide stage leads to an increase in the height of the center of gravity of the body by a few centimeters before starting to launch and accordingly we notice an increase in the shoulder angle during this stage. Increasing the angle of extension of the legs to get a better height, which led to an increase in the body's tendency to fall?

Keywords*: bio kinematics, anterior pneumatic flip.*

Introduction

The skills that push and fly on the balance beam are difficult and complex skills due to the specificity of this device and its legal specifications. And learning these skills will lead to learning other new skills that are more difficult, in addition to achieving most of the requirements for this device. (D) And it has a score of (0.40), as required by the law of gymnastics, and it is a type of skill that needs balance and stability on the device.. From through views researcher movements artistic gymnastics for women, especially for a casual balance noted the existence of technical errors and mechanical skill aerodynamic front summersault team, contrary to what is watching the International Olympic tournaments and that there is weakness in the technical performance of the skills of different aerobic Alqlebatt, including skill (front air summersault vancomycin on balance beam) which leads to the players getting low scores compared to the international players. The researchers attribute this to the weakness of the physical and technical aspects of the players, which affects the motor path of the skill. Here lies the problem of the research in this weakness that leads to technical errors in the technique, which in turn affects the technical performance of the players, as the presence of any defect in performance leads to a significant discount from the performance scores and thus affects the final score of the player. Therefore, the researchers resorted to studying this skill according to some of the biokinetic variables of the anterior pelvic airway on the balance beam. The aim of the research is to identify some biokinetic variables that help in diagnosing weaknesses during the

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performance of this skill and trying to avoid them through special exercises that the player uses by the coach based on the moments of the body parts, and to obtain better degrees by adjusting the technique according to the requirements that Technical performance existing in international law is well governed. This work may lead to the development of some scientific solutions to the problem of training technical performance and physical abilities to raise the scientific level of performance of this skill of analysis.

2- Research procedures:

2-1 Research Methodology: The researcher used the experimental method for one equal group that suits the research. Experimental research aims to bring about "a deliberate and controlled change of the specific conditions of an event, and to observe and explain the actual changes in that event." (Sami, 2000.359)

2-2 The research sample The experiment was conducted on the Egyptian national team for women, whose number is (6) players, with the same training level and age, and in an intentional manner, and they are from the original community.

2-3 Means, devices and tools used in the research:

Arab and foreign sources, the international information network (Internet), software and applications used in the computer, arbitration form, assistant work team, two video cameras (typeCasio) with tripod,

Two (2) video tapes (National 8 ML) And (National 6 ML), Laptop type computer (P4) Number (1) and kinetic analysis system art fish, CDs (CD) Number (2) type)Princo), the legal balance beam device with a length of (5) m and a height of (1.25 cm) number (2), the simplest gymnastics with a height of (1.20) numbered (2), a tape measure meter with a number of (1).

2-4 the selected bio kinetic variables and their extraction method:

The bio kinetic variables were chosen according to the division of the movement into stages, starting from the stage of rise to the stage of decline, and they were as follows.(Firdous, 2015,85)

Stage of advancement

Rotating or spooling phase.

Landing phase

On the basis of that, the bio kinetic variables were selected by converting the video film to the calculator and processing it using the analysis system (Dart fish) And the researchers adopted it according to its importance as the main variables in this skill. (Sareeh, 2007, 215).

2-5 steps of conducting a search:

2.5-1 The exploratory experiment.

In order to avoid the difficulties and obstacles that the researcher may face during the conduct of the main experiment and to identify the strengths and weaknesses of the work and its validity

The exploratory experiment was conducted at five o'clock in the evening on Thursday, corresponding to (20 07/17/20) in the indoor hall of the Egyptian gymnastics team on two players from among the members of the research sample. The researcher used two videographers (type Casio) number (2velocity480 picture/second), and video films (type National) (8ML6ML, Korean made. Developed the first camera to the side of a balance beam so as to be her lens perpendicular to the middle of the player movement point and just 9.58 meters and the height of the lens from the floor (1.65 m), and the researcher used lateral imaging for analysis and extraction variables skill front air summersault vancomycin on the device the second camera in

front The balance beam is distanced (5.70M) It was used in order to obtain the motor path of the skill for the arbitration evaluation of the courts. It depicted the technical performance of the search skill, 40 meters high, and its lens height (1.75 meters) to depict the lateral movement when the player was landing. And it turned out that these distances do not give good clarity in following the movement of the player, which necessitated the researcher to adjust these dimensions to get the best clarity of the image. The deductions are as follows:

- First camera remote (5.70) meters from the side and a height of 1.70 m.
- Second camera at a distance (6.50(meters and height) 1.60m in front of the crossbar.

In addition, the researcher benefited from this exploratory experience in:

1- Identifying the obstacles that the researcher may face during filming. For the purpose of avoiding it during the Implementation of the main tribal imaging process

2- Verify the validity of used video and film cameras.

3- Determining the locations and dimensions of the camera from the device, determining the distances and measurements of the camera, and shooting performance.

4- Determining the movement paths of the players while performing the skill on the device.

5- Verify the clarity of the image and the accuracy of data acquisition.

6- Determine the time taken for the imaging process.

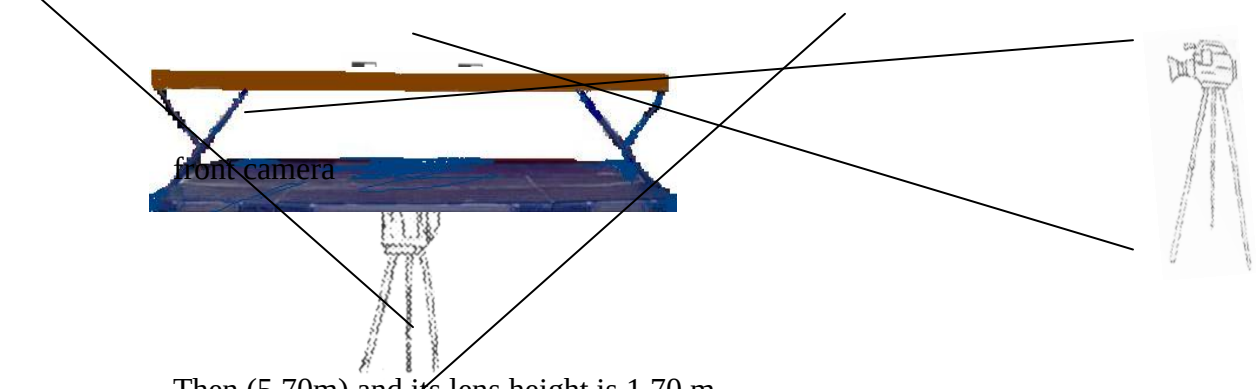
7- Recognize the adequacy of the sample members' understanding of testing and imaging.

8- Knowing the efficiency of the assistant work personnel and their understanding of the imaging and testing procedures in the research.

2-5-2 The main experience of photographing the sample:

The researcher used videography to photograph the research sample at five o'clock in the evening on Saturday corresponding to (2017/07/22) in the inner hall of the gymnasium. The aim of it is to extract the biokinetic variables in the analysis of the skill in question and compare these variables with the global model to extract the kinematic difference between the players and the model in terms of level.

As well as evaluating the level of technical performance of the players. The filming was done with a video (camera. CASIO) number (2) installed on a tripod, and the two cameras were turned on at the same time after completing the determination of the distances and measurements of the device and the skill performance. So that the movement of the player that is photographed is at a right angle with the lens, where we guarantee the depiction of the player’s movement from the moment of getting up until the moment of landing on the balance beam device, in order to Ensure the correctness of the kinematic analysis. (Firdous,2008,92)



Then (5.70m) and its lens height is 1.70 m

side camera
after camera (6.50(m and the height of its lens)1.60) NS

The shape (1)
It shows the dimensions of the cameras used

3- Analysis and discussion of the results:

Table (1)

It shows the arithmetic means, standard deviations of the sample under investigation, the value of the model and the value of (t) Calculated and the significance of the differences in the variables mk c under research

Variables	measruing unit	post test		form		Values t calculated	The significance of the differences
		s	±p	s	±p		
pkg in preparation	meter	0.682	0.025	0.77	0.017	8.713	moral
mkj in tide	meter	0.942	0.034	1.08	0.027	10.050	moral
Highest PKJ in aviation	meter	1.368	0.019	1.45	0.001	10.307	moral

*** Values t calculated (2.571(at significance level)0.05) In front of the degree of freedom (6-1=5).**

Table (2)

It shows the arithmetic means, standard deviations of the sample under investigation, the value of the model and the value of (t) Calculated and the significance of the differences in the variables mk c under research

Variables	measuring unit	post test		form	Values t calculated	The significance of the differences
		s	±p			
cruising speed	m/s	3.760	0.047	4.12	18.974	moral
Momentum change to rise	kg m/s	54.167	7.834	30	7.557	moral
Linear momentum in flight	kg m/s	168.335	12.387	185.4	3.375	moral
Angular momentum in flight	kg m2/d	266.672	26.118	292.93	2.463	random

*** Values t calculated (2.571(at significance level (0.05) In front of the degree of freedom (6-1=5).**

Results

Through Table (1), there is a significant difference between the height of the center of body mass at the moment of preparation between the global model and the research sample. During which she invests the movement of her body during the performance of the skill, and thus the global level was distinguished by these characteristics, which made the differences appear in his favor and with clear differences from what distinguished the individuals of the research sample. In addition, the player who performs the skill of the front air cardio needs a greater inclination than

it is by relying on the pivot leg, whether at the moment of preparation or extension, and this leads to an increase in the tide in the knee joint of the driving leg to reach the state of full extension of it to reach a state of flight, allowing him to After performing the landing process on the crossbar after finishing smoothly and well. This is one of the technical matters that must be focused on in order to achieve the level that matches the international level in this skill. As well as in (height of body mass center in flight), there is a significant difference between the two research groups in favor of the global model. The researcher attributes that the height of the center of body mass at the moment of tide, whether in the global model or the research sample, leads to raising the center of body mass in front of the fulcrum base, and then the vertical distance to the center of gravity of the body will increase, and in turn leads to achieving better flight, which contributes to a state of balance for the masses of the body sections that It will contribute to a good motor transfer process and achieve good compatibility, as the research sample is supposed to be on a level close to the global model. The goal of achieving integration in these variables is to serve the motor duty of performing this skill.

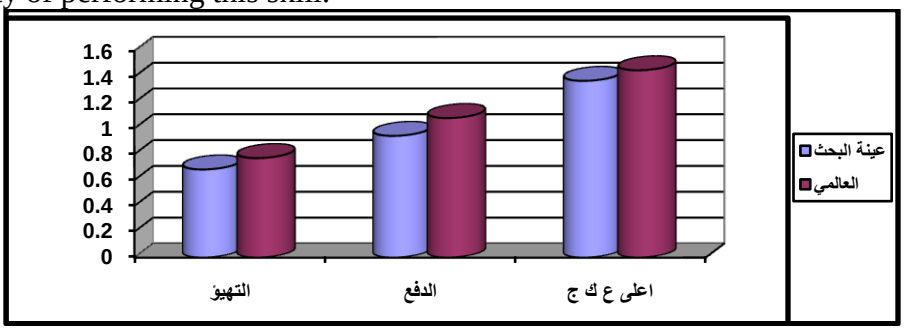


Figure (2)

It shows the arithmetic means of the Egyptian and global model in the variables A, K C

As for Table (2), we find that the full extension of the joints of the body at the moment of propulsion will lead to obtaining an appropriate starting velocity to deliver the body to the appropriate motor path with the system of levers that transforms the body from a force lever to a speed lever to obtain the necessary speed in performing the movement. (Mainel, 1987,109). The researcher attributes that the change in the value of the momentum change, the less it is, we get a good angular velocity at the moment of rising, and then to a good angular momentum after the push, as the mathematician changes the value of the momentum at the moment of rising inevitably, but the lower the value of the momentum change, this is an indication of Increasing the thrust of the force at this moment, as this was one of the features that distinguished the global model in comparison with the values of the variable for the same research sample. As a result of the change in the angular difference, which leads to an improvement in the value of the angular velocity of the body as a whole and this is related to the increase in the amount of total momentum (Whether linear or angular) that the athlete obtains at this stage and then invests it in increasing the trajectory of the center of body mass when flying. (Explicit, 2007, 34)

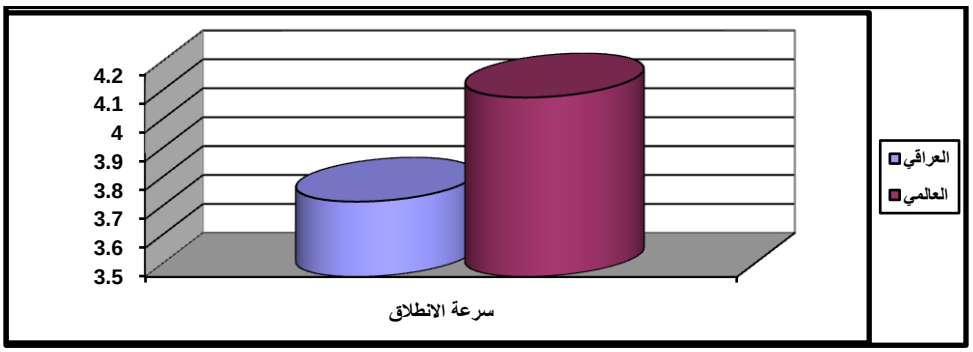


Figure (3)

It shows the arithmetic means of the Egyptian and global model in the starting speed variable

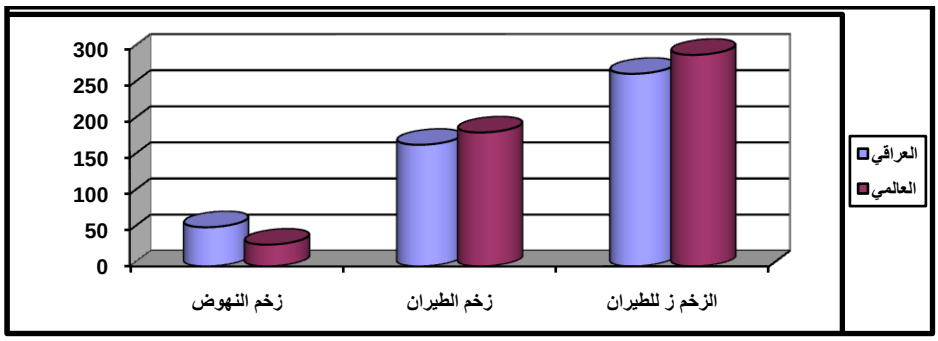


Figure (4)

It shows the arithmetic means of the Egyptian and global model in the momentum variables

Conclusions

1- Swinging the arms forward high during the tide stage leads to an increase in the center of gravity of the body by a few centimeters before starting to launch, and accordingly we notice an increase in the shoulder angle during this stage.
2- Increasing the angle of extension of the legs to get a better height, which led to an increase in the body's tendency to fall?
3- In increasing the center of gravity of the body during the tide as a result of swinging the right arms, which leads to an increase in the center of gravity of the body during flight.
4- To increase the starting speed to serve the motor path of the skill.
5- Reducing the momentum while getting up, and this leads to an increase in linear and angular during flight.
6- Laying the mechanical foundations as a basis for the training process for sports movements facilitates the process of feedback, evaluation and correction of errors during performance.
7- By developing and directing the path of movement in the air core, we are directing the path of action of the special force and making great use of it.

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