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Related Relations between kinematic variables and free landing Corner with Air movements skillfully rear airbag horizontal bar in gymnastics

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Abstract

The purpose of this study is to verify the relationship between the variables of kinematics liberation corner turn-ons device where the players need to corner of gymnastics free occasion so they can complete successfully axle and landing correctly. This study chose 11 players who participated in the 2018 Iraq clubs championship that was held in Baghdad, and analyzed the best performance in the competition. The camera used for (Sony HDR-200 frequency 60 Mbps) after turning photography picture Register to Kinovea program (8.25) for the purpose of extracting the digital data and then treated statistically using the correlation coefficient and decadence pace using the statistical program Spss 19)). Liberalization has been the appointment of an independent variable angle was kinematic variables belonging to verify the difference of each factor. The level of significance was set at p <.05.The study concluded that the estimation of the angular velocity and time to be the best worker aviation angle of freedom through 0.320 corner speed and 0.49 flight time) and affected significantly on the corner of freedom the importance of less than 0.05 (t = -2.85 -2.92 corner speed and flight time) So we can expect that the center of gravity of the body through the angle of the freedom of the player, and axle gymnastics completes successfully and drops the player properly to upgrade its performance in a horizontal bar and removing the danger during the landing. We have consolidated the variables of the angular velocity and time of flight through the results of inputs from 9 variables belonging to explain the angle of freedom. The estimated equations regression line represents the relationship between the corner of speed and release corner flying time is: The corner of release = 4.85 x 102.09 corner speed.

The corner of release =177.3 degrees in 74.2x flying time.

Keywords: *speed the corner, flying time, gymnastics, turn-ons, kinematics*

Introduction

Artistic Gymnastics has registered remarkable progress, highlighting the fact that they evolve in accordance with the trends of Sports Performance, but also have their own characteristics, such as: increased proficiency sports, increasing competition in the competitive programs, and addressing a group of chains new mobility. Athletic prowess to fine artistry and improve the components that provide the training of high-class gymnasts (Vieru, 1997), (Arkaev, 2004) thus, the representation of the technique in gymnastics comes through the system of the combinations of specific mobility and rationally and economically, in order to obtain maximum efficiency in the competition. Therefore, Research In Sulymania & University in the sport of Gymnastics using methods bio-kinematic and roads from other knowledge areas

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(mechanical physiology educational, psychological, medical and other), which basically aims to shed light on features of movement on different devices through the choice of means of recording data processing and analysis (Potop, 2007). In gymnastics, the role of the technical training is very important in the close interrelationship with the other components, therefore, the weak physical training gymnastics player leads to a bad and wrong, and thus the lack of success in the competition. Also, the good technical training based on good physical training, but in the absence of adequate psychological training, leads to poor performance (Dragnea, 2002) in line with the requirements and properties of artistic gymnastics for men, elements can be divided into a horizontal bar to multiple structural groups, is not identified in accordance with the method of implementation, but also in accordance with the indication, namely: headstands, hip circles. (Small and large), free passage on the horizontal bar , freedom and arrest , simple transfers on the upper axis or very nicely done during various fundamental movements like belongings and falls transfers on the horizontal bar of the fourth group in the law of the Federation of International Gymnastics , it has values and various sets of difficulty: B air movements . 0.2 points - the background of the bike is curled up or curved Group C - 0.3 points - قلبتين bike look bubblier-so anybody with full turn, etc.. (Bibire, 2008) (Grigore, 2001) (Yasser, 2004), several criteria can be used to divide the elements of gymnastics to parts, such as the educational, psychological and physiological criteria biomechanics, etc.. And go to increase the level of the topic of educational standards toward biomechanical rules. Because of the use of biomechanical criteria to divide the elements of gymnastics to parts. Thus, the technical structure of the elements of gymnastics has three levels - and stages and erratic periods (Grosu, 2004). The horizontal bar of the gymnasts men, which features the continuity and diversity of performance, interdependence and movements in the form of combining major fatal aviation movements jelly and arrested the performance of the inter mobility and conclude in the end, the player is emancipated from the horizontal bar to fulfill the duty of the kinesthetic model in the air and then landing on the feet, which is known as the kinetic end (the Federation of International Gymnastics, 1997) , is considered the end of mobility on the horizontal bar one of the special requirements that necessitated an arbitration law International Gymnastics performed otherwise the deduction (0.2) degrees as stipulated to be difficult (C) at least. The decline in the turn-ons continuing situation especially when the performance of complex skills with high difficulties, so there is the importance of the analysis of these skills to identify the elements involved in the preparation of appropriate training programs for such skills as well as prevention of injury (Shehata, 1992). The Gymnastics training is currently close to its borders with the evolution of the law biomechanical points (F.I.G, 2013) and the desire to continually seek for moments of installation and innovation. In gymnastics, each skill has a mechanical orientation is vital. In this context, the mechanical principles, such as the movement, speed, and the center of gravity, and angle of the advancement of payment, the landing angle and speed of liberation corner play an important related to performance. The ultimate goal of training interface Biomechanics in the gymnastics training is to make training more effective and efficient and safe. Therefore, the adoption of the scientific method in the analysis of the gymnastics movements programed one of the best methods used to expand our knowledge of the sport and gymnastics (Shehata, 2011; Flayyih, 2013)

Methodology

A Sample Search: 11 players from participating in the competitions of the gymnastics clubs, Iraq (2018) , which was held in Baghdad .selected intentional way players were selected based on the level of competence in this skill and have level in gymnastics competitions was selected as a topic for the current study the arithmetic average and the standard deviation of age, height, weight , age, training program 20.3 ± 2.2 years, is 164.3 ± 8.2 cm, 58.9 ± 6.7 kg and 11.6 ± 2.3 respectively.

Al-fidyawi Al-fidyawi Photography Photography: Officer was for the analysis of air kinematics Sulymania & University () air masses back of the horizontal bar. The camera used in this study (Sony Standard HDR-J10 the frequency camera 60 Mbps HD image quality and put the camera on the rise of 2.5 meters and vertically in the center of the internal tape line in parallel with the equity level at a distance of 10 meters. A digitizing imaging sequence Al-fidyawi of defined stages with the help of distinct program KINESTHETIC analysis Kinovea 8.25).

Statistical Analysis: statistical analysis of these data using the correlation coefficient and decadence pace using the statistical program (SPSS ver. 19.0. Liberalization has been set the angle of the independent variable. **kinematics** was appointed as variables of the verification of the difference of each factor. Been Set the importance level P <.05.

Table 1 shows the descriptive statistics (the median standard deviation) of the variables

	The variables	The median	The Standard Deviation
1	The corner of freedom	76.82	4.83
2	The angular velocity	5.21	0.69
3	Linear Speed	5.73	0.32
4	The angle of the shoulder	166.45	13.37
5	The angle of the hip	121.64	19.46
6	The angle of the knee	94.00	24.71
7	Flying time	1.35	0.05
8	The maximum height of the Center for carrying the body	3.70	0.08
9	The horizontal distance	2.33	0.65

Results

The agenda (2) link the level of significance between the corner of release and kinematic variables

The variable	Statistical capacity	The angular velocity	Linear Speed	The angle of the shoulder	The angle of the hip	The angle of the knee	Flying time	The maximum height	The horizontal distance
The corner of freedom	Correlation Coefficient	-0.69	-0.43	0.334	0.404	0.311	-0.78	-0.54	0.22
	The level of significance	0.026	0.188	0.065	0.077	0.351	0.02	0.354	06 0.741

It is clear from the table (2) the existence of a correlation between the angle of the freedom, speed and angle if (-0.689) reached the level of an indication (0.026).The table also shows the correlation between the angle of freedom flight time (-0.698) and the level of significance (0.017) and under the level of significance (0.05). It is noted that that the angle of freedom from the main factors which led to the rise of the center of gravity of the body in the skill of the two air turns rear airbag streptococcus infections through the angular velocity and time of flight.

This is confirmed (TALHA, 1993) that an increase in the flying time occur as a result of an increase in the angle of the freedom of the body for a greater amount in the corner here, the player will be able to speed from the center of gravity of the body at the level of the high tower.

Between Us table (3) the existence of a correlation between the corner of meaningful release, speed and angle as worth (0.69) and shows us that this variable may have contributed to the variable speed of the rate of the contribution (0.320) this means that the value of the correlation coefficient of this variable is increasing with the increasing rate of contribution.

Table (4) shows the predictive value of a sample search in the angular velocity

Table (3) shows the relationship between the corner of Al haydar relational freedom Corner

The Model	The variables The nature of the parameter	The value of the parameter	Correlation Coefficient Beta	The calculated value of T	The level of significance	Statistical significance
1	Coefficient R Drive	102.09 percentage	adjusted	1.41 T	release 0.000 degree of release	significance Moral
	The angular velocity	-4.85	0.69	-2.85	0.026	Moral
angular velocity	0.69	0.320	0.416	8.120	1 9	0.026

The predictive equation can be derived using linear regression equation is as follows:

Forecasting equation: R = a + b x

An example of how to predict the release speed angle through the corner of one of the players

The corner of release = a + b x speed the Corner

The corner of release = 102.09 -4.85 x rate 76.6% = 69.304

While the median corner release equals (76.82).

It is noted that the body projectiles as in search invite... under the influence of the two forces is located are the gravity and the resistance of the air, in order to player can overcome these two powers in search invite... it works to increase the speed and angle of liberation (Sawsan, recalls (1977) that the distance which is bisected by the projectiles do not rely on speed primary school, but also on the corner of freedom the decline in this corner that leads to the large horizontal mounted and vice versa that the rise of the corner that leads to a decrease of the vehicle and vehicle helicopter. And, when shooting the

body low angle resulting in relatively large horizontal speed as a result, the body does not remain projectiles in the air long enough to cut the long distance and vice versa if the angle of the libel and thus be large vertical vehicle while the vehicle small horizontal, which also leads to the horizontal distance is small. Which also indicates that the skill of air turns rear airbag need more speed. This is confirmed (Talha, 1993) to increase the speed of some of the stages of skilled performance means increased exposure of the body to the centrifugal force, although this force may cause obstruction of performance in some cases, however, the codification of the used is one of the reasons for the success of the performance of the skill, where the rotation of the body about the fixed axis may reach the amount of burden on the player to resist the centrifuge to five times the weight of his body as is the case in the performance of the major oceanic circulations on the horizontal bar.

Table (5) shows the relationship between the angle of the relational release flight time

The variable	Correlation Coefficient R	The heterogeneity of R2 factor contributing or percentage	The adjusted	The value of F	The first degree of freedom	The second degree of freedom	The level of significance
Flying time	0.70	0.49	0.43	8.54	1	9	0.017

Between Us table (5) the existence of a correlation between the corner of meaningful moral release, latency, as aviation worth (0.70) and shows us that this variable may have contributed to the variable speed of the rate of the contribution (0.47) this means that the value of the correlation coefficient of this variable is increasing with the increasing rate of contribution.

Table (6) shows the predictive value of a sample search in the angular velocity

The Model	The variables The nature of the parameter	The value of the parameter	Correlation Coefficient Beta	The calculated value of T	The level of significance	Statistical significance
1	Drive	177.3 degrees in		5.15	0.001	Moral
	Flying time	-74.2	0.70	-2.92	0.017	Moral

The predictive equation can be derived using linear regression equation as follows:-

Forecasting equation: R = a + b x

An example of how to predict the release speed angle through the corner of one of the players

The corner of release = a + b x speed the Corner

The corner of release = 177.3 degrees in -74.2 x 1.36 = 76.39

While the median corner release equals (76.82).

In this sense we can develop predictive equation the angle of freedom according to some variables released phases turn-ons in the performance of the Model skill sessions rear airbag on the horizontal bar.

As long as the body of the player in the air it easy achievement to be required at this time activist. This is confirmed (Talha, 1993) that when a player is trying to increase the number of oceanic circulations that occur during his presence in the air, it must increase the flying time. There are also major factors players are the availability of sufficient time to put an end to the kinesthetic duty required, secondly the higher center of gravity of the body through a delay descending feet to the surface of the earth to try to add a new era of aviation. It also refers (Jirhokhmout, 1987) that the turn-ons player can undermine the balance lost energy by reducing the moment of inertia of the bloc during the forward movement in the center noted that the body closer to the model of the crossbar hinge, causing him to put his body stretching. Those results are consistent with the (Mas, 1998), where he noted that after the passage of the body of the vertical level player at the bottom of the crossbar hinge moves the shoulders and chest up to increase the speed of the body at the top of the skill, those results also agrees with the (Pidcoe, 2005) where he pointed out that the player resorts to shorten the radius of the axle during the climb up through the lower corners of each of the hinge cover the shoulders, thighs and where this will lead to the reduction of the amount of the determination of the deficiencies and to increase the amount of speed tractor, and agrees that the results also with the (Tony, 1990) where he pointed out that the player works to bring the center of gravity of the body of the axle in one of the stages To increase the speed of the four in the corner as a result of the lack of the amount of the determination of the inertia, and also agree that those results with the findings (Yong, 1997), where he concluded that it would be more appropriate for the player to do was arrested in the thighs, shoulders,

when the hinge moves from the bottom to the top of this reduces the determination of the gravitational and impeding the movement of rotation and thus increase speed.

Conclusions

found positive relations between the corner of connectivity and speed of liberalization. found positive relations between the corner of connectivity, latency, liberalization of aviation. ccording to the results of the logical analysis of the regression variables and their relationship to kinematic two air turns liberation angle rear airbag on the horizontal bar could reach the two variables directly influence in the corner of freedom skill they.: flying time, speed and angle. Attention to the formal characteristics of the situations in the body during the performance of the study and attention invite... the training variables that contribute to the good performance of this skill through exercise quality. The necessity extrapolated relational relations results of kinematic variables in the preparation of training programs for turn-ons rear airbag on the horizontal bar. The need to conduct a similar study on the different samples of other skills.

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