

## Effect Training instantaneous by facilitation in the development of variables biomechanics to closer, payment, and long jump for young people

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**ABSTRACT:** Long jump consist of served connected stages of run of the approaching, preparing to upgrade with three final steps, upgrade, take off, and downgrade. Ostensibly of these phases whole constitute a artistic performance the correct if their interdependence that serves objective of this skill. Either the research problem results showed that at the local level far from at the international level in the long jump competition, and that This requires the staff prepare Training Programmers to train the own physical abilities and according to results achieved for the narrow the gap between the global and achievements of the Iraqi. This study aimed to identify some variables of momentary strain and speed of final upgrade step through kinetic analysis, facilitating exercises such as rubber cords in direction of the movement and mobile traffic device for application movements of momentary strain, detection the impacts of the training on mentioned variables. The research is to impose There are statistically significant differences between tribal and a posteriori the tests of the values of the intraday speed of payment approach and achievement of the two groups of search. While search proceedings were used the video and imaging variables the extracted from it, The variables included biomechanics speed last step (through analysis), Starting speed (through analysis), The momentum change during Rise (through analysis), the force hanging over panel when Rise using foot scanner. Has been applied workouts Balahbal rubber device traffic moving on the experimental group for a period not less than 8 weeks Reality two units every week and determine intensity accordance with the time of maximum ran done and maximum Of fo rce rope user was the training in the main section of the unit's training exercises complementary Be the gradient of pregnancy-training at 1: 3 in order to have influential and effective training depending on the scientific underpinnings. The Statistical means: statistic the bag been used (SPSS). Most Conclusions:

- 1- The correct special exercises using rubber cods and mobile traffic was more considerable in the long jump.
- 2- Exercises of rubber cords frequently lead to stimulation of nervous system and improvement of nervous signals sending to muscles, these exercises contribute to reduce the time of ground connection, and subsequent reduction of momental strain time.

**KEYWORDS:** Training, variables biomechanics, long jump, young people.

### 1 INTRODUCTION

Long jump consist of served connected stages of run of the approaching, preparing to upgrade with three final steps, upgrade, take off, and downgrade.

Morphologically, these steps if correlated, result the correct technical performance. Litter lures demonstrated that speed of jumper at run approaching constitute 70 to  $\geq 90$  % of this performance. Some players characterize with highest speed in run of approaching but weaken in correct connection the first step and upgrade, since, upgrade angle decreased when speed increasing and subsequently lead to weakness of performance.

However, results of local long jump faraway from a world levels, this required training programs, more facilities to breakage the classical tools in strain force to coordinate between the last step at run of approach and momentary strain, because several of biomechanical connected variables such as: Kept of self discipline, strain time, and its efficacy.

This study aimed to identify some variables of momentary strain and speed of final upgrade step through kinetic analysis, facilitating exercises such as rubber cords in direction of the movement and mobile traffic device for application movements of momentary strain, detection the impacts of the training on mentioned variables.

The success of long jump depend on a suitable run of approach resulting a higher speed, true connection between speed of final steps speed, run of approach and upgrading, good flight with a body's balance in addition to a good preparation for downgrade, which require strongest leg muscles through speed of its associated contraction and diastole until upgrading.

Scientists documented that a best long jump require:

- Definition of the first moment of foot attach upgrade plate absorption stage, and a moment of ground push.
- Final speed for each run of approaching, absorption moment, and ground left.

### 1.1 THE PROBLEM OF RESEARCH

The results showed that at the local level far from the international level in the long jump competition, And that this requires staff prepare Training Programmers to train own physical abilities and according to results achieved to shorten the gap between the global achievements and Iraqi. This prompted researchers to the studying & researching to contribute to the development of achievement Iraq for this competition, through the adoption of the means facilitation to break the normal pattern to push force and must be achieved harmony between the last step of the to approach and moment of payment because there are many variables biomechanical associated with the payment of the force that is of the most important variables affecting in achieving the achievement good Balothb term (such as the preservation inertia of and the time of payment and efficiency .. To the number of the other variables that need to be careful analysis and properly diagnose in order bypass this node has Jumpes and achieve the goal of the performance, and had never of work careful analysis for the this stage in order recognize the errors and the preparation workouts that help to master the correct binding between the Approaches and the payment intraday effective, using the means of facilitates the application of this important stage and make a case of adaptation them.

### 1.2 THE GOALS OF RESEARCH

- Recognize some variables of of payment ingratiation and the speed of Rise recent step by kinetic analysis.
- Preparation of drills using the means of To facilitate help (The ropes rubber direction the movement and use a moving and walk downward the slopes) to apply the continuous movements intraday of payment them.
- To identify the effect of these private variables on the the exercises and the intraday speed of Approaches and achievement.

### 1.3 THE IMPOSITION OF SEARCH

There are significant differences between the tribal and a posteriori the tests of the values of the intraday and the speed of payment Approaches and achievement for the two sets of search.

### 1.4 THE AREAS OF RESEARCH

- **The human sphere:** National team players for the youth race for the long jump year 2014.
- **The domain of temporal:** The period 27/01 TO 29/03/2014.
- **The domain of spatial:** College of Physical Education, University of Baghdad - Jadiriya.

## 2 THE RESEARCH METHODOLOGY

### 2.1 SYLLABUS

The researchers used experimental method.

### 2.2 SAMPLING

An experimental sample of 12 players selected voluntary from Iraqi youth clubs (20 years less) during 2014 according to rules of International union of athletics, divided randomize into two equal groups: experimental and control.

### 2.3 DEVICES AND TOOLS

(2) video camera (200 photo/sec.), medicinal balance, mobile walk apparatus, foot scan, calculator, programs of kinetic analysis such as Dart fish, Kino via, and Maxtraq, rubber cords 2,3,5,8m timers.

### 2.4 VIDEO PHOTO FOR VARIABLE ANALYSIS

A sample was photo through the last 10m, and upgrade moment using a second camera to measurement the following biomechanical variable: speed of the last step, starting speed, change momentum during upgrade, power spotlight on the plate when upgrading by foot scanner.

### 2.5 PRIOR AND POSTERIOR TESTS

- Video cameras installed to photo three trial for each player, and the best performance was recorded.
- Exercises used rubber cords and mobile traffic:

Maximum intensity power of rubber cords was measured and considered as indicator for training, max speed of each player on the mobile traffic was recorded and thereafter , determination the training style to breakage speed barrier on the device, in addition to quick jumping drills.

2.6 Data analysis included Mean, standard deviation, differences between prior and posterior tests, calculated T for test a significance at  $\leq 0.05$ .

## 3 RESULTS AND DISCUSSION

**Table 1 means and stander divisions between pretest and post test for physical variables for both groups**

Variables	unit	group	Pre test		Post test		F	ST. of F	T	Significance Level	results
			mean	Stander division	mean	Stander division					
achievement	meter	experimental	<b>6.23</b>	<b>0.25</b>	<b>6.57</b>	<b>0.15</b>	<b>0.34</b>	<b>0.109</b>	<b>3.12</b>	<b>0.023</b>	<b>significant</b>
		control	<b>6.18</b>	<b>0.35</b>	<b>6.22</b>	<b>0.30</b>	<b>0.04</b>	<b>0.025</b>	<b>1.58</b>	<b>0.061</b>	<b>Not significant</b>

**Table 2 differences and value (T) for pre and post test for biomechanics variables for both groups**

Variables	unit	group	pretest		posttest		F	ST. of F	T	Significant level	results
			mean	ST.	mean	ST.					
Speed of last step	m/sec.	Experimental	7.758	0.24	8.01	0.18	0.252	0.088	2.85	0.001	Significant
		control	7.68	0.265	7.77	0.243	0.05	0.023	2.11	0.654	Not Significant
Speed of start	m/sec.	Experimental	4.80	0.22	5.935	0.093	1.135	0.235	.834	0.002	Significant
		control	4.70	0.197	4.80	0.18	0.10	0.072	.381	0.098	Not Significant
Momentum chang	Kg*m/sec.	Experimental	180.05	14.07	152.53	9.20	27.52	4.95	.565	0.016	Significant
		control	178.53	19.83	171.25	20.60	4.26	2.266	.881	150.0	Not Significant
strength	Newton	Experimental	1704.1	155.61	20.30	89.16	325.84	88.30	3.69	0.003	Significant
		control	1707.3	124.6	1736.6	126.33	29.33	14.57	2.013	0.121	Not Significant

**Table 3 means and stander divisions and value of T between pretest and post test for both groups in biomechanics average for difference stage**

test	unit	Experimental		control		T	Significant level	results
		mean	ST.	mean	ST.			
Speed of last step	m/sec.	8.01	0.18	7.77	0.243	19.5	0.000	Significant
Speed of start	m/sec.	5.935	0.093	4.80	0.18	13.73	0.000	Significant
Momentum change	Kg*m/sec.	152.53	9.20	171.25	.6012	9.75	0.000	Significant
strength	Newton	20.30	89.16	1736.66	6.3301	5.17	0.001	Significant
achievement	meter	6.57	0.15	6.22	0.30	3.21	0.023	Significant

Data in Table (1) showed a significant experimental variables prior and posterior tests resulted by impact exercises of rubber cords and mobile traffic.

These exercises constitute one of the assistant techniques that spotlight a type of external resistance on the different muscles to help the body's uncommonly and develop the speed, since a small resistance momentary or upgrading speed in long jump, increasing mobilize and stimulation of muscle fibers through compatibility of nervous – muscles and between muscles (pross, 1983). Thus, the players enables a high run speed and high ability to generate alternate central and non-central power in muscles at upgrading moment that lead achievement of momentary strain and a high speed in starting with proportionate values between horizontal and vertical speed at stain moment, as well as use of explosive power to achievement a high final speed that produce a vertical lifting and a best harmonic capacity(otuson, 1976).

### 3.1 BIOMECHANICAL TESTS

Results in Table(2) showed comparable following variables speed of the last step. Starting speed, momentum change, and the spotlight power upgrading moment.

Apparently, effectiveness of rubber cord exercise and mobile traffic improved and lead to breakage of locomotors pattern with certification of no decreasing in a momentum at upgrading, and a high spotlighting power for continuation this momentum.

Technically, the long jump consider a simplest athletics jump, because, run of the approaching \* achieve for one direction, turn the steering of run speed to maximum in the jumping and best downgrading don't form a great difficulties for body's kinetics compared to skipping or other three jumps(boom triple, higher jump, and pole vault) that induce barriers in the connection coordination between different body's movement. Therefore the suggesting exercises was contributed in the development of speed last step, starting, angle of oscillating leg, and flighting scientists observed that development in these speeds came harmonious with supported stimuli that induced the best contraction and muscles diastole according to the aim of approaching run i.e arrival the player to upgrading point in a maximum speed using rubber cords. Thus, approaching must be accomplished gradually to performance a successful take off, since the great acceleration may be cause slowdown at the end of approaching and takeoff(Dintiman et al.2003).the qualitative development happened in the spotlighting power at upgrading due to mobile traffic and rubber cords as resistors in the fast run contributed in muscles tensile, since these instruments generate a straight with raw in different.

Speeds, as well as the action of jump exercise using cords against and with ground gravity which helped in the development of muscles strain, and subsequently achieved significant differences for individuals of this group.

### 3.2 POSTERIOR TEST OF SPEED

Calculated T of the experimental test of speed of last step, starting, momentum change, and spotlighting power presented in Table(3) were significant  $\leq 0.05$ . Therefore, the analysis of players speed in both experimental and control groups in pre and post starting gave a clear concept about performance at this moment, this may be reflect a clear importance of sustain the speed in a balance and continual during both of two stages when applied the mentioned special exercises compared to control.

Kinetic analysis of the examined performance revealed that the foot drive was directly in contact with the plate at upgrading moment with a simple diastole in joints of the same foot. This forced the leg muscles to a negative contraction i.e non-central contraction with gravity, and subsequently non-central contraction against gravity .

The latter when preceding with appositione diastole, the muscle stores elastic energy that's called muscles load or muscles stimulation (Mouch bahani et al.2004).

Because the final step is usually shorter than the penultimate steps, thus jumper should be think about setting the final steps i.e along steps followed by short one during application of approach and upgrading using rubber cords, since the positioning of the last foot in front body with long distance result in stop or slow down the speed that subsequently perform a bad jump(lbde).

Results confirmed on the gained speed during the last two steps and enhance continuity of oscillating the arm for continuation liner momentum during pivot and strain according to the power exerted by the same leg to continue a momentum change as a little as possible (Tabach-anik, 1992). Tylez and James (2000) supported our results and confirm that trainers should encouraged the players to think firstly and then running. Otherwise, the upgrading of leg don't stimulate and muscles intensified completely (Bedi, 1997). Setting of foot upgrading in flat and in front of body result in maximum lifting force, since positioning of toe on ground firstly lead to stoppage effect and slow down his speed, however, setting of fingers firstly on ground result in a weak balance or may be fall down and thereafter declination of upgrading or curved.

#### **4 CONCLUSION**

- 1- The correct special exercises using rubber cords and mobile traffic was more considerable in the long jump.
- 2- Exercises of rubber cords frequently lead to stimulation of nervous system and improvement of nervous signals sending to muscles, these exercises contribute to reduce the time of ground connection, and subsequent reduction of momental strain time.
- 3- Speed application using rubber cords and excess jump exercises on the mobile traffic device contributed in the change of movement model in the final steps of approach and upgrade.
- 4- Improvement mechanical factors in the stages of approach and upgrading of jump performance.
- 5- Rubber cords training developed the maximum speed and explosive power.
- 6- Exercises of rubber cords and mobile traffic certified the compatibility of muscles kinetic according to development of biomechanical variables.

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