

THE CORRECT SEQUENCE OF MOTOR TRANSPORT BETWEEN BODY PARTS TO SKILL BEATING OVERWHELMING INDICATION OF MUSCLE ELECTRICAL ACTIVITY AND MECHANICAL VARIABLES

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ABSTRACT

The problem with question-based on motor transport, trends in respect of any body parts that begin with movement and their transition to other parts of the integration of performance in line with the requirements of the game, we all know from previous studies that transport the parties, trunk activist from the upper to the lower limb or trunk, they we try in this research show that there are only moving cluster or detailed activist who is associated with the trunk and move opposite like indicated by sources. The researchers used the descriptive for the purposes of analysis, the sample b (3) players, overwhelming beat higher professional volleyball clubs excellent (2013-2014) and use a device to measure electrical activity and program (Kinovea) kinetic analysis, the researchers used percentage, arithmetic mean of the results, it was concluded that the process of motor transport for the crushing blow skill in volleyball from moment to moment basis and payment starts with the muscles of the trunk and muscles of men and shoulder, and the study recommended a Research on other games and other muscles to substantiate the theory of motor transport.

KEYWORDS: SEQUENCE. MECHANICAL. SKILL. INDICATION. MUSCLE.

1. INTRODUCTION

The continuous development of theories of the mechanical human body and its specificity. Needs from each researcher to extrapolate the results and their conclusions scientifically which commensurate with the need for them according to the specificity of the human body ,and one of these concepts is the concept of moving transport between the different parts of the body while doing any movement. The research discussed on the idea of where the movement starts and where is transmitted and where to end, and whether that use of some assistive devices such as electrical activity device of muscle and video imaging to identify some of the mechanical variables help in the discovery and proof of this idea, and this subject considered one of the important topics that will help to select the correct tracks to work on their education and help to train the special muscles without random in the work of these muscles. As is known that motor transport means "the gradient in the movement of the parts so this gradient characterized towards the motor duty for the exploitation of the overall strength to serve the movement , " which means "a scientific term used by the human body to increase the effectiveness and efficiency or strength or speed of the organ which has to do the performance(wajeeh mahjob 1987) and the motor transport considered one of the most important characteristics of the athletic movements "(Sareeh Abdul Karim, 2010), that the nature of the human body and its component parts necessitate be a process of communication between these parts and transfer movements for each part of the body parts in the kinetic performances with high specificity and renewed depending to the potential mechanics of the motor device and the foundations of physiological laws of biomechanics (Najah Shalash and Akram Mohammed 2000), which also is a " dynamic synergy between muscle group and the other for the purpose of consolidating one of the two groups the other to contribute to the achievement

of the desired goal" (Bstaiwisy Ahmed 1996), so the importance of the research is that from where to start movement where transmitted and what is the sequence of moving to other parts during the skilled performance of the athletic effectiveness, we all know that all the studies of Arab or foreign indicated that there are two types of the motor transport ; the first one be from the extremities to the trunk and the second from the trunk to the extremities and this case is considered one of the scientific problems that intersect with mechanical performance, considering that the motor transport starts from the bigger mass to smaller to ensure the arrival of these parts equally when applying the various movements and cannot be contrary, all these questions, the researchers wanted to be answered through scientific experiment using a device to measure the electrical activity of the muscle (EMG) who cares planning electrical muscle and recording the electrical activity of contracted muscles and to what extent the involvement of muscles in the movement (Baumann, W.1989) and this scheme is defined by two variables (X) time and the unity of the milli seconds m.sec)) and second (Y) the signal strength and the unity of the micro volts (uV) (Safaa Abdel-Wahab, 2009). The kinematical analysis of one of the skills that shows the motor transport clearly which is a skill of overwhelming striking of volleyball in order to prove the validity of this analysis or its mistake. The research aims to find out the value of the electrical activity of some leg muscles, trunk and arm of the skill of overwhelming strike by volleyball.

2. RESEARCH METHODOLOGY

The researchers used a descriptive approach for the purposes of analyzing the results.

3. RESEARCH SAMPLE

Represented by (3) players, specialists by the high overwhelming strike in volleyball from the Premier League (2013 to 2014 m).

4. RESEARCH VARIABLES

two phases have been identified from the analysis of the performance of the skill of the muscular work corners and the kinematical one, the two phases of build and pushing. The electrical activity variables are as shown in Table (1).

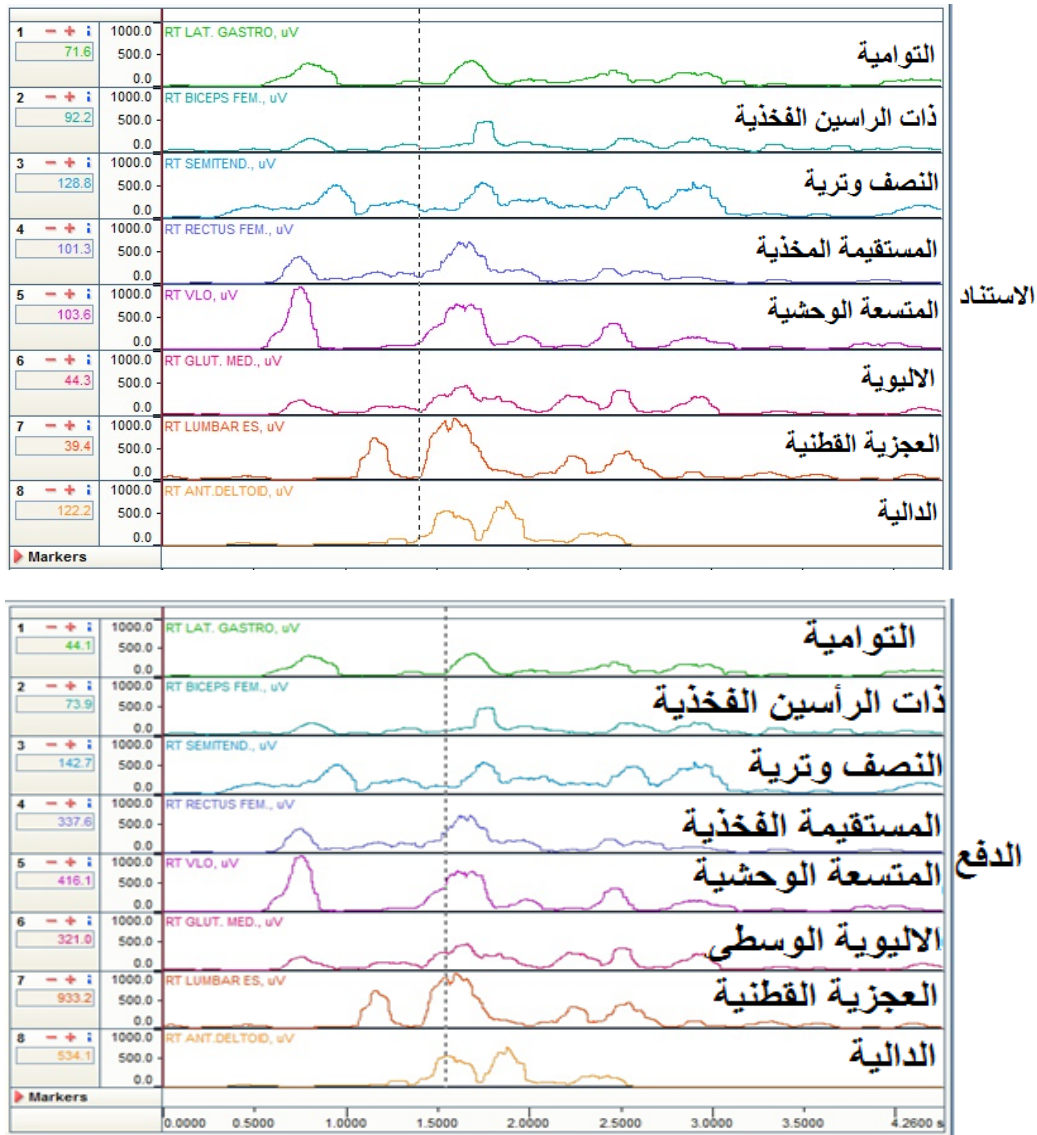
Table (1) the studied muscles in the research for the analysis of muscle activity and units of their measurement

rank	muscles	
1	Gastronomies Muscle	<ul style="list-style-type: none"> • Time-sec • The sum- mit-milli volt
2	Biceps Femoris Muscle	
3	Semitendinosus Muscle	
4	Rectus Femoris Muscle	
5	Vastus Lateralis Muscle	
6	Gluteus medius Muscle	
7	Lumbar Muscle	
8	Ant Deltoid Muscle	

The kinematical variables: the researchers used a kinetic analysis program (Kinovea0.8.7)

1. The absolute angle of the leg in the farthest bend: which is the angle between the horizontal lines which pass through the point of the knee point parallel to the land with the line of the leg.
2. The absolute corner of the thigh (Biceps) in the farthest bend: which is confined between the imaginary horizontal line which pass in point of the knee joint which is parallel to the and the line of the thigh
3. The angle of the thigh muscle: in the farthest bend: which is confined between the imaginary horizontal line which pass through a point parallel to the hip that parallel to the land and the thigh.

4. The absolute angle of the humerus: which is confined between the imaginary vertical line between that pass from the shoulder joint and humerus.
5. The absolute angle of the trunk: It is the angle between the imaginary horizontal line that pass through the hip point which is parallel to the land with the trunk line.



The form of (1) a graph of muscle electricity during the moments of supporting and pushing.

2-7 the field experiment :was conducted on Sunday (23/02/2014) pm, in the volleyball court in the Physical Education College / University Baghdad and given (4) attempts for each member of the research sample to perform the skill of the overwhelming striking which is straight and high by the volleyball, The researchers used statistical pouch (SPSS) for data processing.

5. DISPLAY THE RESULTS, ANALYZING AND DISCUSSING THEM

Table (2) shows the results of research variables in the supporting phase and their angles and the time of work after (0.05sec) and the value of motor transport.

Rank	Variables	Value of the activity The support- ing phase	Angles of sup- port	Value of activity after 0.05 sec	Value of transport
1	Gastronomies Muscle	50.3	61	37.4	12.9-
2	Biceps Femoris Muscle	56.9	69	51.0	5.9-
3	Semitendinosus Muscle	117.1	69	132.2	14.9
4	Rectus Femoris Muscle	104.4	73	188.8	84.4
5	Vastus Lateralis Muscle	115.4	73	296.6	181.2
6	Gluteus medius Muscle	29.8	82	185.1	155.3
7	Lumbar Muscle	45.6	82	662.6	617
8	Ant Deltoid Muscle	127.9	20	195.0	67.1

Table (3) value of the values of the motor transport level of the muscles between the two phases of support and after (0.05) sec.

rank	Values of transport	Names of muscles	Rank of muscles accord- ing to EMG
7	662.6	Lumber	617
5	296.6	Vastus lateralis	181.2
6	195	Gluteus medius	155.3
4	188.8	Rectus femoris	84.4
8	185.1	Ant Deltoid	67.1
3	132.2	Semitendinosus	14.9
2	51	Biceps femoris	-5.9
1	37.4	Gastronomies	-12.9

Can be seen from the table (3) that in gastronomies muscles; the decreasing level of muscle activity was (25%). And decreasing values of muscular activity of the biceps femoris muscle (10%). The other muscles were at the stage of increasing the proportions of muscular activity (in semitendinosus muscle, the increase at rate of (11%). In rectus femoris ; the level of increase (44%) , for the vastus lateralis muscle was (61%) and , for the Gluteus medius (83%), for the lumbar muscle (93%) and for the deltoid muscle (34%). Notes that the biggest increase was in the lumbar muscle which correlated with the trunk through the hip which are gluteal and vastus lateralis femoris and then all these muscles joint torso and thigh which begin the movement.

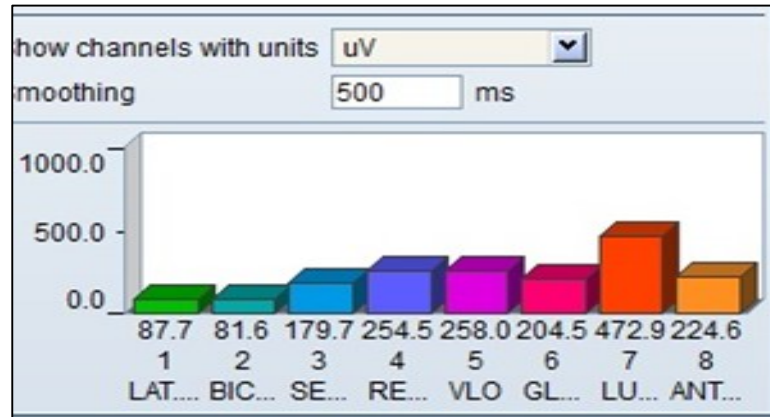


Figure (2) chart for muscle activity at the moment of support and beginning the moment of pushing

Analysis the order of the values of the motor transport of muscle activity according the level of increasing and their discussion:

Table (4) ordering the values of the motor transport level of muscle activity according the level of increasing

Rank of the muscle	The muscles	Values of transport	Level of activity according to the EMG	Rank of the muscle according to the values of increasing
7	Lumbar	662.6	617	%93
6	Gluteus medius	296.6	155.3	%83
5	Vastus Lateralis	195	181.2	%61
4	Rectus Femoris	188.8	84.4	%44
8	Ant Deltoid	185.1	67.1	%34
3	semitendinosus	132.2	14.9	%11
2	BicepsFemoris	51	-5.9	-10%
1	Gastronomies	37.4	-12.9	-25%

Can be seen from the table (4) that sequence of the values of the increase in muscle activity for the motor transport was started by trunk muscles then frontal thigh muscles and then the shoulder, then the semitendinosus muscle and this is a scientific evidence to begin the transfer process by trunk before the other parts, and also notes that transportation has been by the size of the muscle and then starting with work according to the requirements of the last part of the skill which is the arm which it's represented by the shoulder, the mentioned values came as result of what is given by these devices of digital values . The aim of this work by using the electrical activity of the muscle is to provide information for the researchers about the muscular activity of a group of these muscles to get an accurate estimates according to the nature of the motor track and the motor to be used in the analysis of muscle and skilled tracks (2004 A. Rainoldia, Melchiorrib).

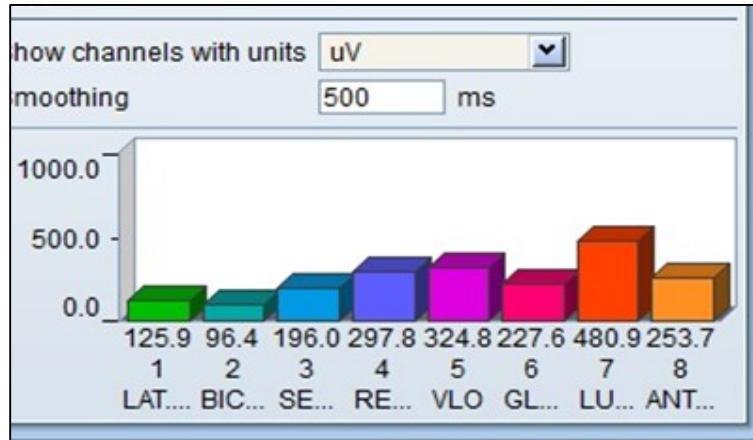


Figure (3) graph of the activity of the muscles at the end of the pushing

That what is happening from the momentum of the trunk is added to the momentum of the arm through the axis of the shoulder, and from the other side that the movement of the trunk will help the effective tide by the hips which is supplementary for the movement of the trunk to be the end of the movement by the ankles for the men and by the wrist during striking the ball for the arms, and these muscles are of great significance in the two phases of pushing and jumping for the volleyball player (2001Kakahana, W.and Suzuki). The researchers added that trunk by its movement be based on the two legs during stability of the two legs on the ground, and so the trunk starts with the movement and followed by pushing by the legs, and it is possible for the arms to change their tracks in the air because it is based on the largest part which is the trunk, because the decision of the path of the trunk has identified trends of the force to it from the moments of support and leaving the ground (Yaroub Khyoun 2009), that the results achieved in the skill of overwhelming striking can be realized in any movement from the other movements like scoring by handball, basketball, weights lifting, the high jumping, and the beginning of swimming, disc throwing, and hammer throw, tennis at the moment the transmitting or striking the ball in football.

6. CONCLUSIONS

1. The process of motor transport for the overwhelming skill in volleyball from moment of support to the moment of pushing started by the trunk muscles then the rectus and then the shoulder muscles.
2. The first summit of the activity began by trunk then shoulder then the leg
3. The highest activity appeared in the lumber then vastus lateralis then rectus femoris then deltoid then semitendinosus.
4. The highest percentage of increase in the activity of the muscles started in the trunk and then the frontal leg muscles then deltoid then semitendinosus.

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