

## **The Impact of Training Program on the Body Axis Muscles upon the Balance and Performance Level of some Complex Attacks Skills on Junior Judo Players**

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### **Introduction and research problem**

The main goal of sport levels is to try to reach the highest possible level of sport in the specialized activity through the use of scientific method in the training programs, and adapting the science which provided by technology to serve the training process, where the individual talent in the 1930s and 1940s had played a key role In the individual's access to the highest levels of sports.

The central part of the body is a muscle group consisting of the trunk and pelvic muscles responsible for maintaining the stability of the spine, which includes the muscles of the abdomen and muscles of the hip joint and muscles connected to the spine. (17:29) (21:29)

Frederickson (2005) and William (2003) point out that

the central part of the body consists of a group of twenty-nine muscles known as the Limbo-Pelvic-hip complex. Central gravity (mid) body. (18: 20) (25: 37)

Allen & Skip (2002) attributes the benefits of exercise to strengthening the muscles of the central part of the body. These include increased motor efficiency during exercise and daily activities, stability of the body, increased control and balance during movement, and strengthening of the muscles of the central part helps to produce tremendous strength not only from those muscles

But from adjacent muscles such as the muscles of the shoulders, arms and legs because many of these muscles are responsible for the stabilization of the spine and

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pelvis in their natural positions and help these exercises to achieve better balance of the spine and pelvis during a violent physical activities, as well as give the body sporty appearance during the movement. (12: 41)

Judo is a form of wrestling where wrestlers wear special clothes and through these clothes and the belt that wraps around the middle twice allows for high technical performance Judo goal is to use the art of throwing from the stand and the art of playing ground (2: 12)

The judo sport is characterized by the constant change between the positions of the striker TORI and the OKY between the attack and defense and the deceptive attack over the time of the game.

Therefore judo requires strength and speed in attempts to change quickly between these And the need for a high level of skill, so that these skills are performed automatically.

The accuracy of the skillful performance is linked to the player's ability to balance during the final stage of the skill.

The balance of basic physical ability plays an important role in our daily life and the sports field in general and Judo in particular. Balance is one of the most important elements that must be taken care of when teaching and training (2: 3)

The ability to achieve the right balance in the performance of different skills is one of the most important aspects of the judo player during the conflict, That the implementation of skills under the resistance of the competitor requires familiarity with the laws affecting the mechanical performance, to find the best ways to achieve good balance as a case repeated throughout the period of survival, which is difficult to maintain it on a continuous basis,

Both players seek to maintain its balance and disturb the balance of his opponent, Direct load or circumference, so both are in an unstable state of equilibrium (10: 314).

The stages of performance in judo are characterized by interference and high speed and require a high degree of strength and balance by aligning the

different parts of the body with smooth and proper timing with a very small fulcrum base represented in the instep, and in view of the techniques of throwing in the judo we find what leads with the feet Which leads to a one-foot base bearing the weight of the body and the other foot either obstructing or lifting the opponent, this is either facing the competitor or winding around the longitudinal axis with a different angle, with strong resistance from the opponent, which increases the measures that the player must take to maintain stable

Which requires a high degree of physical abilities interrelated with each other such as the strength of all types and speed of all types, agility and flexibility and the control of performance is clearly shown in the work of a series of consecutive skills or movements that break the balance of the performance of the skill and then re-controlled again to be able to continue the following movements from (2: 3) (15),

the body's speed and the position of the weight line are considered to be one of the most important variables that

determine the degree of equilibrium.(15 : 5)

The researchers noticed that the judo players at the Sohag Sports Club, although the technical performance of attack skills are good but they do not have the ability to maintain their body balance after the attack in many cases, As a result of the counterattack, which may allow competitors to exploit it to throw or install them And the loss of the game, as a direct result of the lack of equilibrium, which led the researchers to conduct a training program using the exercises of the muscles of the body axis to develop the level of balance and the performance of some offensive skills compounded by the buddy Judo.

### **Search goal**

The aim of the research is to design a proposed training program for the muscles of the body axis and to know its effect on:

- The level of balance in the judo junior players .
- The level of performance of some attacks skills

compounded by the judo junior players .

### **Research hypotheses**

- There are statistically significant differences between the averages of pre and post measurements in the level of balance and the level of performance of some attacks skills compounded by the beginner judo experimental group.
- There are statistically significant differences between the averages of pre and post measurements in the level of balance and the level of performance of some attacks skills compounded by the judo junior control group.
- There are statistically significant differences between the averages of the two dimensions of the experimental and control groups in the level of balance and the level of performance of some attacks skills compounded by the judo initiator and for the experimental research group.

### **Search procedures**

#### **Research Methodology**

The researchers used the experimental method using the experimental design of the post-pre measurement of two groups, one control and the other experimental

#### **The research sample**

The sample of the research was chosen in a deliberate manner by the young judo beginners at Sohag Sports Club in the age stage (12-14 years). The sample consisted of (28) young people who were randomly divided into two equal groups (10) and 8 To conduct scientific research.

#### **Homogeneity of the research sample:**

The researchers evaluated the variables (Age, Height, Weight, age of training) and the level of balance and Attack skills compounded from the top on the sample of the research and reached (28)

**Table (1)**  
**Homogeneity of the research sample in growth rates, level of balance and skills attack by judo junior**

Serial	Variables	Measure unit	SMA	standard deviation	Mediator	Torsion coefficient
١	Age	Year	١٣.٢٥	٢.١٨	١٣.٢٠	١.٢٢
٢	Height	Cm	١٤٢.١٧	٤.١٥	١٤٢	٠.٨٨
٣	Weight	Kg	٤٥.٦٥	٣.٢٠	٤٥.٦٠	١.٢٥
٤	Training age	Year	٣.١٧	٠.٩٨	٣.١٠	٠.٦٥
٥	Front balance	Degree	٧.٥٨	٠.٢٢	٧.٥٥	٠.١٤
٦	Rear balance	Degree	٧.٢٩	٠.٩٦	٧.٢٠	٠.٣٢
٧	Balance left	Degree	٦.١٢	٠.٥٦	٦.١٠	٠.٥٤
٨	Balance right	Degree	٦.٤٥	٠.١٤	٦.٤٠	٠.٢٥
٩	Get Yoko from a composite attack	Degree	٤.١٨	٠.٢١	٤.١٥	٠.٦٢
١٠	Get Wazari attack from a composite	Degree	٤.٣٦	٠.١٨	٤.٣٥	٠.١٧
١١	Get Abion from a composite attack	Degree	٤.٥٢	٠.٣٢	٤.٥٠	٠.٦٣

It's evident from Table 1 that the torsion coefficient for the research variables were limited between ( $\pm 3$ ) located under the curve equinoctial which indicates the homogeneity of the sample.

**researchers used the following tools:**

**First Hardware:**

- **Measure the height:**  
The length was measured using the Resameter device for the nearest (1) cm.
- **Weighting :**  
The weight was measured using the medical scale of the nearest (1/2) kg.

- **Measuring the balance element:**

Using a special device to measure (left, right, left and front side balance)

- **Stop Watch**

**Second:**

**Forms used in research:**

**The researchers prepared a number of forms:**

- Data entry form (Name, Age, Hght, Wight, Age of training)

**Attached (1)**

- The registration form for the measurement measurements - Technical Variables Attachment (4), (10).

• Gentlemen experts in physical education and the names of form has been selected experts from the faculty and trainers judo facility members (5) in accordance with the following conditions:

**Third: Tests used in research:**

**Tests for measuring the level of frontal, back and side balance:**

The researchers used a balancing device which consists of a circular disk mounted on a disk with two handles for the card. A computer cable is inserted from the bottom of the device.

The researchers enter the lab data such as name and date of birth and give instructions for performance on the machine.

On the device for 5 seconds and then rest for 10 seconds then give a real try for the first position for 10 seconds then rest for 15 seconds and then give a real attempt for the second position for 10 seconds.

The sport is comfortable and gets enough sleep before the device gives the percentage of the laboratory and the percentage obtained, determines the area where the laboratory is located and the logic that is supposed to occur, ranging from weak to excellent. The device shows a diagram showing the extent of the oscillator during measurement.

**Technical tests to measure the level of skilled performance in question.**

1 - Enter the skill (Ouch current) and then converted to the skill (Ebon Sionage) and then converted to skill (Hari Joshi)

2 - Enter the skill (Ouch current) and then converted to the skill (Ostogari) and then converted to the skill (Ko Och Gari)

3- Enter the skill (Kawach Gari) and then converted to skill (Morutih Sionage) and then converted to the skill (Ogosh)

**Steps to build the program:**

**Proposed Program:**

After studying the specialized scientific books, previous research and personal

interviews with the field workers, the researchers determined the muscles of the central part as well as the muscles working in the skills of the composite attack in Judo. The program was designed to improve the skill level of judo players, using Swiss ball exercises to strengthen the muscles of the central part Of the body.

**First: the goal of the program  
Upgrading the skill level of judo skills:**

- Increase the muscle strength of the muscles of the central part (arms - abdomen - back - thigh).
- Increase the stability of the muscles of the central part through the use of exercises on the Swiss ball.

**Prepare the program in its initial form**

The researchers prepared the program in its preliminary form and included the following:

**A. The time division of the program**

**Duration of the program:**

- (8) weeks (2 units per week).
- Divided into (3) periods each unit contains a number of exercises.
- Number of units: (24) units.
- Unit Time: (90) minutes.

**Third: Design of the proposed program**

The program was divided into (3) phases:

The first stage :

- Unit content: preliminary exercises to stabilize the central part of the body to perform exercises in a steady state.
- Duration: 2 weeks.
- Number of units: (4) units (2) units per week.
- Unit time: (90) s.

**The second phase:**

- The content of the unit: exercises complex to stabilize the central part of the body to perform exercises in the position of stability with the movement of arms and legs.
- Duration: 4 weeks.
- Units: (8) units with (2) units per week.
- Unit time: (90) s.

**Third level:**

**Module content:**

primary and composite exercises and exercise performance in the stability and movement.

- Duration: 2 weeks.
- Units: (8) units (2) units per week.
- Unit time: (90) s.
- The program appears in its final form in Annex (10)

**View and discuss the results**

**First: Display the results**

**Table (2)**  
**"The significance of the differences between the pre and post measurement in the balance level of Complex Attack skills experimental search group " N = 10**

Level of significance	T value	Improvement rate	Differences between the two averages	Post measurement		Pre measurement		Measurement unit	Variables	
				E	S	E	S			
Indicated	٤.١٧	%٣١.١٤	٢.٣٧	٠.٢٥	٩.٩٨	٠.٢١	٧.٦١	Degree	Front balance	Physical capacity
Indicated	٤.٢١	%٤٨.٧٠	٣.٥٧	٠.٤١	١٠.٩	٠.٣٦	٧.٣٣	Degree	Rear balance	
Indicated	٣.٩١	%٥٩.٢٨	٣.٦٤	٠.٢٧	٩.٧٨	٠.٢٤	٦.١٤	Degree	Balance left	
Indicated	٣.٧١	%٤٧.٤٦	٣.٠٩	٠.٤١	٩.٦٠	٠.١١	٦.٥١	Degree	Balance right	
Indicated	٣.٥٤	%٨٩.٠٩	٣.٧٦	٠.١٧	٧.٩٨	٠.١٨	٤.٢٢	Degree	Get Yoko from a composite attack	Skill performance
Indicated	٣.٢٨	%٧٨.٣٢	٣.٣٦	٠.٣٢	٧.٦٥	٠.٢٢	٤.٢٩	Degree	Get Wazari attack from a composite	
Indicated	٣.٦٤	%٥٦.٦٣	٢.٩٨	٠.٢٣	٧.٥٢	٠.٣٦	٤.٥٤	Degree	Get Abion from a composite attack	

\* Tabular value (T) at significance level (0.05) = 1.812

It is clear from Table (2) that there are statistically significant differences between the mean and the post measurement in the variables in question. If the value (t)

calculated between the mean differences between the pre and post measurement is greater than the tabular value at (0.05) For the experimental group.

**Table (3)**  
**"The significance of the differences between the pre and post measurement in the balance level of complex attack skills control search group " N = 10**

Level of significance	T value	Improvement rate	Differences between the two averages	Post measurement		Pre measurement		Measurement unit	Variables	
				E	S	E	S			
Indicated	٢.٦١	%٨.٦٠	٠.٦٥	٠.٢٤	٨.٢٠	٠.١٨	٧.٥٥	Degree	Front balance	Physical capacity
Indicated	٢.١٤	%١٥.٦١	١.١٤	٠.٣٦	٨.٤٤	٠.١٦	٧.٣٠	Degree	Rear balance	
Indicated	٢.٦٢	%١٧.٢١	١.٠٥	٠.٥١	٧.١٥	٠.٠٢	٦.١٠	Degree	Balance left	
Indicated	٢.٧٤	%١٢.٢٤	٠.٧٩	٠.٣٤	٧.٢٤	٠.٠٥	٦.٤٥	Degree	Balance right	



**Follow Table (3)**  
**"The significance of the differences between the pre and post measurement in the balance level of complex attack skills control search group " N = 10**

Level of significance	T value	Improvement rate	Differences between the two averages	Post measurement		Pre measurement		Measurement unit	Variables	
				E	S	E	S			
Indicated	٢,٦٥	%٣٦,٤٧	١,٥٥	٠,٥١	٥,٨٠	٠,١٦	٤,٢٥	Degree	Get Yoko from a composite attack	Skill performance
Indicated	٢,٤٧	%٣٧,٨١	١,٦٣	٠,٢٢	٥,٩٤	٠,٢١	٤,٣١	Degree	Get Wazari attack from a composite	
Indicated	٢,٩٨	%٢٨,١٦	١,٢٩	٠,١٨	٥,٨٧	٠,٣٦	٤,٥٨	Degree	Get Abion from a composite attack	

\* Tabular value (T) at significance level (0.05) = 1.812

Table (3) shows in question for the benefit of statistically significant differences between the pre and post measurement of the control group in the variables the telemetry, since the calculated value (t) is greater than the tabular value at (0.05).

**Table (4)**  
**"Significance of differences between the two dimensions in balance and skill performance Combined attacks experimental and control groups " N 1 = n 2 = 10**

Level of significance	T value	Control group		Experimental group		Measurement unit	Variables	
		E	S	E	S			
Indicated	٣,٢٥	٠,٢٤	٨,٢٠	٠,٢٥	٩,٩٨	Degree	Front balance	Physical capacity
Indicated	٣,١٤	٠,٣٦	٨,٤٤	٠,٤١	١٠,٩	Degree	Rear balance	
Indicated	٣,١٢	٠,٥١	٧,١٥	٠,٢٧	٩,٧٨	Degree	Balance left	
Indicated	٣,٢٥	٠,٣٤	٧,٢٤	٠,٤١	٩,٦٠	Degree	Balance right	
Indicated	٣,٨٤	٠,٥١	٥,٨٠	٠,١٧	٧,٩٨	Degree	Get Yoko from a composite attack	Skill performance
Indicated	٣,٢٥	٠,٢٢	٥,٩٤	٠,٣٢	٧,٦٥	Degree	Get Wazari attack from a composite	
Indicated	٣,٦٩	٠,١٨	٥,٨٧	٠,٢٣	٧,٥٢	Degree	Get Abion from a composite attack	

\* Tabular value (T) at significance level (0.05) = 1.725

Table (4) shows statistically significant differences between the mean of the intermediate measurement levels of the experimental and control groups in the different measurements under study in favor of the experimental group. The calculated value of the difference between the mean differences in each is greater than the tabular value At the significance level (0.05).

### **Discussion of results**

#### **Second: Discuss the results**

It is clear from Table (2) that there are statistically significant differences between the mean and the post measurement in the variables in question. If the value (t) calculated between the mean differences between the pre and post measurement is greater than the tabular value at (0.05)

Of the experimental group and attributed the researchers to this improvement to the good planning of the program of exercises muscles of the body axis and the regulation of training loads in a scientific manner suitable for the stage and the training of the study sample for the use of Swiss

ball exercises and light weights as a key part of the strength training center to develop the muscles of the axis of the body, Training LOADS graduated during the application of the program by training different muscle groups, especially the muscles of the central part.

This is in line with Allen, Skip and Allen (2002). The most important benefits of exercise are strengthening the muscles of the central part of the body, increasing motor efficiency during exercise and daily activities, increasing the stability and stability of the body, Neighboring (shoulder, arms and legs) (12:41).

The strength training of the center is used to strengthen the muscles of the center and the full transfer of strength from the lower end through the trunk to the upper limbs and sometimes the portable device and therefore the lack of training in this type of exercises does not lead to the transfer of kinetic energy completely from the bottom up and thus performance athlete Not good (24: 18).

In this regard, Dave Schmitz (2004) points out that the center's strong muscles connect the lower end to the

upper end. In addition, the training of the center's force includes multi-directional movements, where the exercises are performed by focusing on one end of a single limb making it The best exercises used to improve the strength of the center muscles (mid body). (25:15)

With regard to improved motor balance, Kleber asserts Kibler WB. (2002) states that rubber reflex activity allows the excellent transfer of the force characteristic of velocity (muscle capacity) to the same biomechanical similar movements that require high capacity of the trunk and legs and show results when performance of skill.

This indicates that the training of the axial part of the body has improved the ability of the nervous system to increase the compatibility of muscular action between the muscles of the upper and lower limbs and this corresponds to what JA Freeman (2011) pointed out that the volleyball player often needs during the performance of the movement during the matches To the compatibility between the large parts of his body during performance and this is linked

to the ability of the central nervous system to provide tone or muscular tension in proportion to the nature of performance target and reflective reactions work to achieve the balance required between the processes of arousal and cessation within the muscle system working within performance The dynamic (27:19).

It is clear from Table (3) that there are statistically significant differences between the post and the pre control of the control group in the variables in question for the benefit of the telemetry.

The calculated value ( $t$ ) is greater than the tabular value at (0.05) The performance control group has a balanced and complex offensive skill, which is based on explanation and model. It includes explanation of performance, clarifying the learning points of skill and correcting mistakes, which contributes to improving the level of players. It also includes technical and legal information related to skills.

The researchers refer these results to the suitability of the proposed program in terms of (selected exercises

and load distribution and appropriate number of training doses) for the age stage in the research, and this is consistent with what was referred to by Abdul Aziz Al-Nimr (2000), Yahya Ismail (2002) (3: 8) (14:11).

A training instructor should prepare the training program for the performance of the training, so that the training is similar to the dynamic structure of the performance. In order to develop the training of the training program, it is necessary to study the motor performance of the activity. ).

Table (4) shows statistically significant differences between the mean of the intermediate measurement levels of the experimental and control groups in the different measurements under study in favor of the experimental group. The calculated value of the difference between the mean differences in each is greater than the tabular value At the significance level (0.05).

The researchers attributed the rate of improvement in favor of the experimental group from the control group to the proposed exercise of the stability of the

axis of the body, which helped to strengthen the stability of the muscles of the central part, which in turn led to an improvement in the level of performance offensive skills in the buddy judo.

The researchers point out that the stability of the central part is an important factor in judo sport, since the good player must have strong central muscles to help increase the effectiveness of the technique and the general form of performance, so the researchers refer to these differences that the proposed program to develop the muscles of the central part of the body Has a positive impact on improving the skillful performance of attacks skills in Judo

William (2003) confirms that exercise performance to develop the stability of the central part on a non-stationary surface such as the Swiss ball is better than its performance on a stable surface, which helps to develop the elements of fitness. (23:25)

The researchers attributed this to the fact that the training of the central part of the muscles of the trunk led to the improvement of the

balance element as the success of the complex attack skills that led to the strengthening of the muscles of the trunk because of its significant impact on the performance of this skill.

The results of this study agree with the study of Bara Sbeih (2011) (3) that the training of the strength of the center contribute to the improvement of strength and muscle strength and balance.

### **Conclusions**

1 - The program of exercises muscles of the axis of the body led to an improvement in the balance level of judo beginners.

2 - The program of training muscles of the axis of the body led to an improvement in the level of attack compounded by the budding judo.

### **Recommendations**

1- Apply the exercises of the muscles of the axis of the body to other sports.

2 - The application of exercises muscles of the axis of the body to other skills.

3- To identify the effect of some elements of fitness on the muscles of the central part and their impact on the level of skill performance.

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