

# **Special Exercises for Development of Some Components of Special Muscle Strength and Their Impact on Performance of Front Hand Jump on Vault Table**

**Researcher**

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**Abstract**

strength of all kinds is the main pillar of gymnasium, the most important of the fitness ingredients, and the jumping table is one of artistic gymnasiums for men and women, which is enriched by progress and development, which receives great attention from the coaches and players, because of its characteristics that distinguish it from the rest of devices, and skill of the hands jump is the skill of hands jump front is one of most important skills of Vault Table in which the body cuts into a complete circle around its transverse . research problem has been manifested by weakness and low level of performance of some students and others hesitated to perform the skill of front hands on Vault Table due to the failure to adjust technician performance stages in addition to not fulfilling physical requirements that skill needs, foremost of which is the explosive force and strength of speed of its success. .

-Aimed of research: identifying effect of special exercises in developing some of components of special muscle strength and technical performance of skill of the front hands on Vault Table.

- research assumed: presence of statistically significant differences between results of tribal and post -test in some components of special muscle strength and the technical performance of skill of front hands on Vault Table.

- research community was manifested by students of third stage in Faculty of Physical Education and Sports Sciences, Basrah University for the academic year 2022-2023, who numbered (200) distributed over (7) people. On Vault Table for material

- researcher recommended adopting training program used in developing and developing special strength and its impact on performance of the front hands on Vault Table.

**Key words:** Special exercises; muscle strength; front hand jump; vault table.

## **1- Definition of Research**

### **1-1 Introduction Research and Import**

Many countries and countries have paid great attention to the sporting field, so it became a fertile ground and a wide field of competition and showing various capabilities. Gymnasium was not immune to development and progress that has occurred in all kinds of sports. This sport had a large share of it, and the gymnastic sport is a competitive sport of a very special nature and requires A high level of physical capabilities that represent the broad base to reach a good skill performance, as its practitioners need a special physical fitness that qualifies it to develop the necessary elements to practice this sport and the strength of all kinds is the basic pillar of gymnasium and one of the most important components of fitness, and the jumping table is one of the gymnastics devices Technical for men and women, which is enriched by progress and development, which is receiving great attention by coaches and players, because of its characteristics that distinguish it from the rest of the devices, it is the only device that does not contain a kinetic series, but rather contains technical stages of performance and these stages need to understand and study the nature of the characteristics of these stages, The skill of the front hands is one of the most important skills of the jumping table in which the body cuts into a complete circle around its transverse axis from the approaching and to the decline, which imposes on the player special physical requirements that help the player to perform and from the foregoing, the importance of research has been the importance of dealing with the components of special muscle strength where The process of physical preparation is adjacent to the skill performance, so the researcher sought to use special exercises to develop the characteristic of muscle strength, which is one of the most important physical qualities on the jumping table and on all gymnastic devices, so special physical exercises play an important role in developing the technical performance of the skill of the front hands from During the development of both physical numbers of learner or player .

### **1-2 Research problem:**

Skill of front hands is one of the basic skills on Vault Table and success of its performance does not depend only on the proper control and interconnection of technique technical performance stages, but the

physical aspect is a large share, especially the strength element. Each motor skill has its own physical capabilities that help the player to perform and stop the level of skill to extent its possession of it and the success of performance of skills of gymnasium requires physical development and high skill. The research problem has been manifested through weakness and low level of performance for some students and others hesitated to perform skill of front hands on Vault Table due to failure to adjust technical performance stages in addition to not fulfilling physical requirements that skill needs, especially explosive force and distinctive force for the success of its performance.

### **1-3 Research Aim:**

1-Learn about effect of special exercises in developing some of the components of special muscle strength.

2-Learn about effect of developing some of special muscle strength components in the technical performance of the skill of the front hands on Vault Table.

### **1-4 Research Hypotheses:**

1-There are statistically significant differences between results of tribal and post- test in some components of special muscle strength.

2- There are statistically significant differences between results of tribal and post -test in technical performance of skill of the front hands on Vault Table.

### **1-5 Research fields:**

**1-5-1 Human field:** Third stage students in Faculty of Physical Education and Sports Science-Basrah University for academic year 2022-2023.

**1-5-2 spatial field:** gymnasium Technical Hall in Faculty of Physical Education and Sports Sciences, Basrah University.

**1-5-3 Time field:** from 22 /10 /2022 to 30 /3/2023.

## **2--Research Approach and Field Procedures:**

### **2-1 Research curriculum:**

Researcher used experimental curriculum with a single group design by testing its suitability

### **2-2 Research Sample :**

Researcher identified his research community, who are students of third stage in the Faculty of Physical Education and Sports Science, Basrah University for academic year 2022-2023. The front on the Vault Table is wake.

### **2-2-1 Homogeneity and Equivalent Members of Sample:**

In order to achieve homogeneity between members of research sample, researcher used coefficient of Kurtosis for Research variables (length, weight, age), as shown in Table (1)

**Table. (1)**

**Homogeneity research sample.**

verbal's	Unit Measurement	Mean	Standard deviation	Kurtosis
Length	Cm	174.500	1.732	-0.819
Wight	Kg	64.333	1.825	-0.378
Age	Year	22.083	0.792	- 0.161

### **2-3 Means of Collecting information, Devices and Tools used to research:**

#### **2-3-1 Means of collecting information:**

- Arab and foreign sources.
- International information network.
- Examinations and measurement.

### **2-3-2 Devices and Tools used to research:**

- Vault Table
- HP Core i5
- Electronic balance
- stop watch
- Electronic calculator
- Measurement tape.
- Simplify your smoothness.
- stationary.

### **2-4 Tests used by Research:**

**2-4-1 Test of force distinguished by speed of arms** (Muhammad Hassan Allawi & Muhammad Nasr al-Din: 2001)

**The goal of the test:** measuring the strength of the speed of the arms.

**Tools used:**-timing clock.

**Test procedure:** From the inclined formalization mode, noting that the body take a good and correct position while arms completely, then extend the entire arms. "

**Registration:** number of bending and tide within (10 seconds), as it is the indicator of distinctive force of the speed of the arms muscles.

**2-4-2 Test of the force that is distinguished by the speed of two legs** (Iman Hussein Ali: 1999)

**Test Name:** Severity maximum distance in (10) sec

**The goal of the test:** Measuring the strength of the speed of the two men

**Time tools:** Timing watch, Burke for marking, whistle, measuring bar, registration form

**Performance description:** The player stands behind the starting line and after hearing the signal, he shall be part of both feet in a straight line and at the utmost speed.

**Method of registration:** distance traveled by the laboratory is recorded during period (10) sec.

### **2-4-3 Sitting test from slavery by bending two legs for a period of (10) seconds**

(Muhammad Ibrahim Shehata & Muhammad Jaber Baraqal : 2003).

**First: Test Name:** Sitting Test from the Separation (from the Placement of the Cycles) (10) seconds

**The purpose of test:** This test aims to measure the rapid strength of the abdominal muscles.

**Tools used:** an electronic timing watch, your rug.

**Performance specifications:** laboratory is lying on his back over rug, with his feet open (20) cm so that the palm touches the neck and the two elbows are two and bends the knees (the colleague installs two legs) and upon hearing start signal, laboratory bends trunk to reach sitting position in length and two knees are two, then repeat This quickly as possible as possible in (10) seconds.

**Registration:** Record correct number of times during (10) seconds.

### **2-4-4 Test of the explosive power of arms (Qais Naji Abdul Jabbar& Bastweisi Ahmed: 1987)**

**Test Name:** explosive power test of arms.

**purpose of the test:** Measuring explosive strength of muscles of arms and shoulders.

**Tools used:** (flat area, small rope, chair, medical ball, measuring bar, marks used for marking)

**Performance specifications:** - laboratory sits on the chair and the medical ball, which is carried by two hands over the head and the trunk is in contact with the edge of the chair

- A rope is placed around the laboratory chest and grabbed from the back by a tight, for the purpose of preventing the laboratory from moving to the imam while throwing the ball with two hands

- The process of throwing ball with two hands is carried out only without using trunk

- Calculating the grades: - degree of each attempt is the distance between the front edge of the chair and nearest point that ball places on the ground, given to laboratory two attempts and calculate best result of measurement.

#### **2-4-5 Test of Explosive Power of Two Men**

(Muhammad Ibrahim Shehata & Muhammad Jaber Yarkaqa: 1995).

**Test Name:** Long jump from stability for one time.

**The purpose of test:** Measuring the explosive strength of the two legs.

**Tools used:** - Measurement tape (metric)

A line to start a decree on the ground

Adhesive tapes installed on floor.

**Performance specifications:** laboratory stands so that toes are behind mark (the starting line) and feet are separately from each other.

**Registration:** laboratory is given three attempts and result of best measurement is calculated, as measurement is made from t point (starting line) to the nearest point of leaving the laboratory on the ground when it is landed after jump is completed.

#### **2-4-6 Test of skill of front hands on vault table.**

Technical performance of skill of front hands on vault table. of (10) degrees was evaluated by the technical teacher of gymnastic after conducting the warm -up and taking one attempt to prepare to perform test.

#### **2-5 Tribal Tests:**

Researcher conducted his tribal tests on sample of research, which numbered 10 students at 11.45 in morning on Monday 5/12/2022 by applying strength tests that are distinguished by speed of arms, legs, trunk and explosive power of t arms and legs, as well as the performance test for front hands on vault table. In hall gymnastic at t Faculty of Physical Education and Sports Science - Basrah University.

## **2-6 Main Experience:**

After reviewing some of literature of sports training and technical gymnasium, researcher has prepared a set of exercises for purpose of developing research variables (speed of speed of arms, legs, trunk, and the explosive force of the arms and legs)

- Duration of program reached (8) weeks, with (3) training units per week.
- First training unit on Monday 12/12/2022 until 30/1/2023.
- Average time of single training unit between (40- 45) minutes outside the classroom time
- Unit included training of three sections of the preparatory section with a time of (10 d), which included a group of exercises with jogging, strengths and stretching exercises.
- main section of training unit included a set of special exercises for development and development of distinctive strength of arms, legs, trunk, and explosive force of arms and two legs by (8) exercises in a high-tender training method (80-90 %) and a time of (30 d).
- Closing section included calming exercises with a time of (5 d).
- Severity of exercises was legalized, relying on maximum frequency of each exercise.
- Rest between repetitions and exercises based on pulse.
- Principle of gradient was adopted in t severity of pregnancy and 2-1 ripples.

## **2-7 Post-Test:**

researcher conducted post- tests on the research sample at 11.45 in the morning on Monday, 5/2/2023, by applying the strength tests that are distinctive with speed and explosive strength of arms and the two legs, as well as performance test for front hands jump on vault table. In gymnastic hall in the College of Physical Education and Sciences Sports - Basrah University, and the researcher tried to provide same conditions as tribal test as possible.

## **2-8 Statistical means:**

Researcher used statistical program (SPSS) to process search data version 19.



### 3- View, analysis and discussion of the results:

#### 3-1 View and analysis of results of tribal and post -tests for variables for research sample

Table (2)

Mathematical milieu, standard deviation, calculated (T) value, standard error, SIG and statistical significance

variables	M/U	Tribal – Test		Post-test		T collected	Standard error	Sig value	indication
		M	S	M	S				
strength of arms distinguished	COUNT	11.700	0.948	13.700	1.159	7.746	0.258	0.000	moral
strength of speed two legs	M	18.350	0.803	22.038	1.070	8.192	0.449	0.000	moral
strength of speed stem	CM	9.000	0.666	11.900	0.737	7.660	0.378	0.000	moral
explosive power of arms	M	3.442	0.465	4.643	0.747	7.534	0.159	0.000	moral
explosive power of two legs	M	2.011	0.186	2.426	0.137	4.918	0.843	0.001	moral
strength of arms distinguished	Degree	3.200	0.788	6.400	0.843	11.012	0.290	0.000	moral

Appears from results offered in Table (2) that value of (T) calculated for following tests

(Distinguished power of arms, the speed of the speed of the two legs, distinctive strength of the stem, the explosive force of the arms, the explosive force of the two legs technical performance) reached a row (7.746, 8.192, 7.660, 7.534, 4.918, 11.012) The values (Sig) also appeared. The attached is smaller than 0.05, which indicates the presence of moral differences between the results of tribal and post- tests and for benefit of post-tests.

### **3-2 discuss results**

results of tests in Table (2) showed high moral results and in favor of post- tests, and if it indicates something, it indicates effective effect of special physical exercises prepared by the researcher, where the researcher attributes morale of the differences to special exercises, effectively contributed to the development of special muscle strength components and thus contributed to the development of The technical performance of the skill of the front hands on vault table. Where (Mahmoud Abdullah Al -Shati and others: 1991) confirmed, "There is a close link between motor skills and physical qualities that the player acquires in the training process." (Marwan Abdul Majeed Ibrahim :1999) confirms "muscle strength is an essential element in increasing degree of sporting achievement of this game or sporting event." researcher also attributes morality of differences to special power exercises that had a clear impact in developing the explosive force and the distinctive force of the speed of members of the research Performing training unit exercises and connection of these exercises with skills is an important and necessary factor in success of skill performance of front hands on jumping table. The muscles and the improved dynamic distribution to implement the performance of the optimal motor duty. " Also, the remarkable development of research sample came as a result of diversity in special strength exercises and its repetition in a scientific and thoughtful manner in a way that suits the nature of research sample, which gave great benefit to most of the working muscles and that this development is due to use of exercises similar to the stages of technical performance of skill, where (Ibrahim Shehata: 2003) indicates to "Special exercises are used to develop and develop the correct performance of the motor skill of gymnastics. These special exercises contain a quality similar to basic technical performance of exercise."

## **4- Conclusions & Recommendations**

### **4-1 conclusions:**

- 1- Special physical exercises prepared by researcher effectively contributed to development of the two-strength and explosive force attributes of muscles of the arms, abdomen and legs.
- 2- Development of characteristics of the distinctive force with speed and explosive power muscles of arms, the abdomen and two legs had an important effect in developing technical performance of skill of front hands on vault table.

#### **4-2 Recommendations:-**

- 1- Adopting training program used in developing and developing special strength and its impact on the performance of the front hands jump on vault table.
- 2- Conducting similar studies on other skills and devices, games, and other skills.

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