

## The Effect of a Proposed Training Program on Improving the Lower Limb Explosive Power Among Kung Fu Players Aged 13 to 15

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### Abstract:

This study seeks to evaluate the effect of a proposed training program in order to improve the explosive power of the lower limbs among Kung Fu players aged 13 to 15. To fulfill the research objectives, the researchers conducted a field study at the Tiger Claw Kung Fu Club in M'sila province. The study sample consisted of 10 players who were randomly chosen from the Tiger Claw Kung Fu Club in M'sila. The researchers applied the Sargent test to measure the explosive power of the lower limbs.

The outcomes revealed:

- Significant statistical differences between the pre- and post-test results for individuals, with the post-test showing more improvement in lower limb explosive power among 13–15 years old Kung Fu players.
- The age range between 13 and 15 years old was ideal for improving Kung Fu players' explosive power.

**Keywords:** Kung Fu, explosive power, training program.

### 1. Introduction and Research Problem:

In Kung Fu, the physical aspect is just as significant as other elements like the technical component. More precisely, the physical aspect involves the growth and development of the physical attributes required for specific sports. A Kung Fu player needs to be technically and physically prepared.

Several studies have shown that strength is one of the most crucial physical attributes required for a Kung Fu player. According to Talha Hossam Al-Din, it is the ability to overcome resistance that is less than maximum but still exhibits explosive power. Barabeh Hamza and Ghanem Nour Al-Din, on the other hand, define it as the ability to generate maximum strength in the shortest amount of time (Barabeh Hamza and Ghanem Nour Al-Din, 2017, p. 98).

Hamada Haji and Mohamed Murtat defines strength as the ability to produce maximum strength at the highest speed in the least possible time through a single muscle contraction, as is the case in jumping (Hamada Haji and Mohamed Murtat, 2021, p. 03).

Bouaicha believes that to reach the peak of athletic achievement, it is necessary to develop effective programs based on scientific and studied foundations from all aspects, such as regulating training loads and distributing training loads correctly throughout the week.

This led us to pose the following question: Is there an effect of the proposed training program to improve the explosive strength of the lower limbs in Kung Fu players aged 13-15?

Under the general question, the following partial questions arise:

1. Are there statistically significant differences between the pre-test and the post-test in improving the explosive strength of the lower limbs?

### 2 - Objectives of the Study:

- To know the extent of the impact of the proposed training program on developing the explosive strength of the lower limbs for Kung Fu players aged (13-15).
- To reveal and highlight the importance of the explosive strength quality in the age group (13-15).

### 3 - Importance of the Study:

The scientific value of the research arises as it investigates the effect of a proposed training program on an important physical quality in Kung Fu, which is (explosive strength). In addition, there is a

scientific value to our research, which is to reveal the importance of the qualities of (explosive strength) in the age group (13-15).

#### **4 - Terminology of the Study:**

**4 - 1 - Procedurally:** It is a training plan based on scientific foundations.

**4 - 2 - Explosive Strength:** Procedurally, it is the ability to exert maximum strength in the least possible time.

**4 - 3 - Kung Fu:** It is a martial art that originated and flourished in China and contains two types of competition: Sanda and Tao Lu.

**5-1 -** A study by Ishaq bin Danidina and Abdelkader bin Qaida 2022 entitled Proposing a training program to develop the strength and speed characteristics of senior Kwankdo practitioners, Journal of Research in Physical Activity and Sports Sciences and Techniques, Volume No. 03, Issue No. 04, University of Mohamed Boudiaf, M'Sila, Algeria.

Which aimed to:

-To identify the effect of the proposed training program to develop the strength and speed qualities of Kwankdo practitioners.

The study sample consisted of:

The researcher used the physical testing tool to collect data as follows:

- Test from the hanging position for 10 seconds.

Long jump test from standing.

Reaction speed test (ruler test).

According to the experimental method

The following were the most significant outcomes:

- The training program clearly and visibly affects the development of strength, which is defined by speed.
- The training program has a definite and noticeable impact on explosive power development.

**5 - 2 -** Research by Barakat Abdel Aziz and Malook Kamal 2022 titled "Improving the motor speed characteristic of the lower limbs in Kung Fu players under 13 years old through the use of proposed training units using the repetitive training method" Ziane Achour University, Journal of the Mathematical System, Volume 09, Issue 2. Algeria's Djelfa.

Which aimed to:

- Searching for differences between the pre- and post-measurements of the experimental group.
- Find the differences between the two dimensions.

Yin for the experimental and control groups.

According to the experimental method, the most prominent results were:

- The emergence of statistically significant differences between the pre- and post-tests of the experimental group, in favor of the post-test, in improving the motor speed characteristic of the lower limbs.
- The age group under 13 years was very suitable for improving the motor speed characteristic of Kung Fu players under 13 years.

#### **7- Study methodology:**

##### **7 -1 -Survey study:**

An exploratory study is a small exploratory experiment to test the validity of the main experiment. We determine the original community and its components or the type of test and a small sample from this community to conduct the experiment on (Mahjoub, 1993, p. 235)

On October 1, 2023, the researcher visited the Tiger Claw Club training headquarters in order to use the scientific methodologies used in the study and to obtain accurate and precise data.

This study helped us identify some positive things. We will mention some of them:

- Choosing the right field test
- Knowing the suitability of the field of study for field research procedures.

##### **7 -2 - The method followed in the study:**

Researching facts and trying to arrive at general laws cannot be done without a scientific method that requires the researcher to follow its stages and steps with complete accuracy and rigor. (Rabih, 1994, p. 19).

Based on the nature of our topic, we adopted the experimental approach in our study.

AmmarBouhoush and Muhammad Dhneibat say: The experimental method is the closest research method to solving problems in a scientific way and the experiment, whether it is done in the laboratory or in the hall or in another field, to try to control all the variables and basic factors with the exception of one variable that the researcher deals with in the study, where the researcher adapts it or changes the measurement of its effect in the process.(Dhanibat, 1995, p. 89)

### **7 -3- Study community and sample:**

#### **7 - 3 - 1 - The concept of the study community:**

By the research community we mean all the components of the phenomenon that the researcher is studying. In fact, studying the entire original research community requires a long time, strenuous effort, and high material costs. It is sufficient for the researcher to choose a sample that represents the research community in a way that achieves the research objectives and helps him accomplish his mission.(Malham, 2000, p. 200).

Our research community is represented by the Kung Fu players of the Tiger Claw Club in the state of M'Sila, under 13-15 years old category.

#### **7 - 3 - 2 The concept of the research sample:**

It is that part of society that is chosen according to scientific methods and rules, so that it represents society correctly. (Lotfi, 1976, p. 353).

#### **Sample selection method:**

We determined our research sample by selecting a category of less than 13-15 years for the Tiger Claw Kung Fu team in M'Sila. This sample was selected randomly and consists of:10 out of 60 from the Tiger Claw team in M'Sila,

**Variable:**It is the factor in which any change occurs in its relationship with another variable, and it is of two types.(Nasser, 1984, p. 74)

A - The independent variable: is the factors that affect the dependent variable.

In this research, the independent variable was: a proposed training program.

B - Dependent variable:It is the factors or phenomena that the researcher seeks to measure and which are affected by an independent variable.

In this research, the dependent variable was: improving the explosive strength of the lower limbs of Kung Fu players aged 13-15 years.

#### **7 – 4 - Tests used:**

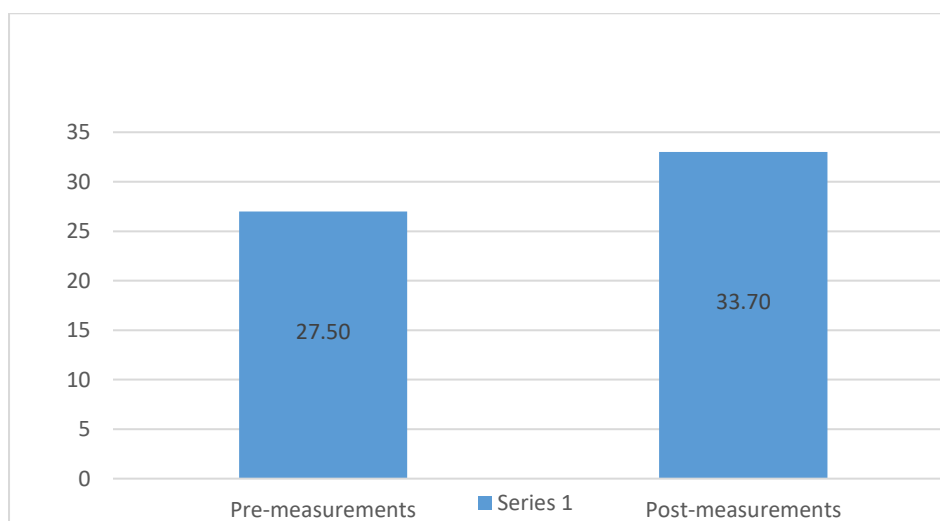
- Explosive strength test (Sargent test).
- Test objective: To measure the explosive strength of the lower limbs.
- Performance specifications: We fix a ruler or measuring tape on the wall to measure the vertical jump distance between the two marks. Then the test taker stands next to the wall barefoot, holding a piece of chalk about one inch long in his hand. Then he extends his hand to its fullest extent to make a mark on the board with chalk. When performing the mark, the distinctive arm must not be raised above the level of the other shoulder when placing the mark, as the shoulders must be in one straight line. Then the test taker begins to jump vertically as far as he can to make a mark with chalk at the highest point he reaches. The test taker has the right to two weights if he so desires.

**How to register:** The test taker is given three attempts and his best attempt is recorded. The measurement is made from the first mark to the second mark in centimeters.

**8 -1-**Displaying the results of the pre- and post-tests of the sample in the Sargent explosive power test:

**Table No. (01):** Shows the results of the pre- and post-measurements of the sample in the Sargent test.

Measurements	Arithmetic Average	Standard Deviation	Number of Sample Members	T Value	SIG Value	Degree of Freedom	Statistical Value
pre-measurements	27.50	5.54	10	4.29	0.002	09	Value
post-measurements	33.70	3.91					



**Figure (01):** Shows the difference between the arithmetic mean of the sample between the pre- and post-measurements in the explosive strength test.

- From the results of Table No. (01), we note that the arithmetic mean of the sample in the pre-test is estimated at (27.5)
- The standard deviation is equal to (5.54), as for the dimensional measurement, the arithmetic mean was equal to (33.7), while the standard deviation was equal to (3.91), while the SIG value was estimated at (0.002), which is greater than 0.05 at a degree of freedom of 09 with a significance level of 0.05.
- Thus, this indicates the existence of statistically significant differences between the pre-measurement and post-measurement of the sample in favor of the post-measurement. From this, it can be said that the applied training program had a positive effect on the level of explosive strength of the lower limbs.

## 9 - Discussion of research hypotheses:

### Partial hypothesis:

In light of the results obtained from the analysis and discussion of the results of the pre-measurement and post-measurement of the sample shown in Table No. (01), it became clear that there are statistically significant differences between the pre-measurement and post-measurement in the Sargent explosive strength test, in favor of the post-measurement.

This is because the proposed training program that the researcher applied to his sample members had a positive impact on the explosive strength of the lower limbs and improved its level.

**- Analysis of the results in light of the general hypothesis:**

By discussing the partial hypothesis which states that "there are statistically significant differences between the pre- and post-measurements in improving the explosive strength of the lower limbs among Kung Fu players aged 13-15 years." Which proved the existence of statistically significant differences between the pre- and post-measurements of the sample in favor of the post-measurement in improving the explosive strength of the lower limbs.

- Through this, our general hypothesis has been achieved, which states that: The proposed training program has an effect on improving the explosive strength and lower limbs of Kung Fu players aged 13-15 years.

**10 - Conclusions and suggestions :**

**10 - 1 - Conclusions:**

- The emergence of statistically significant differences between the pre- and post-measurements in improving the explosive strength of the lower limbs among Kung Fu players aged 13-15 years.
- The age group is(13-15) years was very suitable for improving the motor speed of the limbs of the kung fu players.
- Setting 3 training sessions or doses throughout the week was very suitable for the age group 13-15 years.

**10 -2 - Suggestions:**

- Taking care of athletes from a physical perspective and giving the physical aspect sufficient time during the training season.
- Paying attention to adjusting the training program and giving it the status it deserves in all aspects.
- Paying attention to age groups and improving each physical characteristic at the appropriate age, according to the opinions of experts and researchers.

**11 - Conclusion:**

The training program prepared according to scientific methods is the main factor for the development and improvement of the athlete's athletic form. Building the training program correctly in terms of determining the number of training units per week and how to distribute them throughout the days of the week and following the principle of undulation in the training loads specific to the units as well as building the program in a manner that is consistent with the age group to be trained, all of this contributes positively to bringing the athlete to the highest possible level.

Considering everything mentioned above, we conclude that the proposed training program has had a positive impact on the class. And Explosive power of the lower limbs and their impact on Kung Fu players aged 13-15 years. Finally, we hope that we have opened the door to new studies on this topic, and we hope that we have benefited and provided benefit from this modest study.

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**Appendices:**

**Normality tests**

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistics	ddl	Sig.	Statistics	ddl	Sig.
VAR00001	,145	10	,200*	,964	10	,835
VAR00002	,200	10	,200*	,886	10	,153

\*. It s'agit of the borne information of the vraie signification.

a. Correction de signification de Lilliefors

