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## The effect of agility exercises with aids in developing approximate speed and achievement in the effectiveness of the long jump

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### Abstract

The researchers used kinetic agility exercises as aids in developing the speed of approach in the effectiveness of the long jump, and where the essential importance of agility in games that depend on skill performance and because of its role in determining the results of competitions.

The research problem is summarized in the lack of use of motor agility exercises and the stability of the level of achievement of long jumpers in Iraq. The research aims to prepare agility exercises with aids to develop the speed of approaching in the effectiveness of the long jump, as well as to identify the impact of agility exercises with aids to develop the speed of approach and achievement in the effectiveness of the long jump.

The researchers assumed that there were statistically significant differences in the study variables among the sample members, while the research sample included (4) high jumpers for the category of applicants from Baghdad Governorate, and using the experimental method, as the pre-tests were conducted on 1/10/2021 and the training program was formulated and applied for a period of (45) days, after which the post-tests were conducted on 11/20/2021, and then the results of the research variables were calculated, while the researchers concluded that the agility exercises for the use of Using auxiliary tools created a positive effect, and the researchers concluded that working according to the method of exercises used led to the development of kinetic agility and then the development of approach speed, and thus the development of digital achievement for research samples.

**Keywords:** Special agility, approximate speed, long jump

### 1. Introduction

The characteristic of kinetic agility is a crucial and indispensable attribute associated with sports activities in general, and particularly with the effectiveness of the long jump. Its inherent connection lies in coordinating movements aimed at enhancing the skill level of the long jump athlete, ultimately determining the outcome of the competition. The long jump is recognized for its requirements of strength, speed, and elevation, making it distinct. Therefore, the research holds significance in utilizing agility exercises with the aid of auxiliary methods to enhance the approach speed of long jumpers.

#### 1.1 Research problem

Upon examining the long jump training programs in Iraq and evaluating the achievement levels of athletes, researchers have observed a lack of incorporation of agility exercises using auxiliary methods. This identified gap forms the basis of the research problem.

#### 1.2 Research Objectives

- Develop agility exercises utilizing auxiliary methods to enhance the approach speed in the long jump event.
- Assess the impact of agility exercises with auxiliary methods on the development of approach speed and the level of digital achievement in the long jump.

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### 1.3 Research Hypothesis

There will be statistically significant differences in the research variables between the pre-tests and post-tests, favoring the post-tests.

### 1.4 Areas of Research

1. **Participants:** Elite long jump athletes.
2. **Timeframe:** From October 1, 2021, to December 28, 2021.
3. **Location:** Al-Shaab International Stadium track and Ministry of Youth Athletics track.

## 2. Research Methodology and Field Procedures

### 2.1 Research Methodology

The researchers employed an experimental approach to address the research problem. This methodology allows for the manipulation and control of variables to analyze their effects on the desired outcomes (Olayan and Ghoneim, 2004, p. 51).

### 2.2 Research Sample

The research sample consisted of four individuals who demonstrated proficiency in the long jump event and were categorized as applicants in the province of Baghdad. They were purposefully selected using an intentional sampling method.

### 2.3 Methods, devices and tools used in the research:

#### 2.3.1 The methods used in the research:

1. Arabic and foreign sources and references.
2. International Information Network (Internet)

#### Observation and experimentation.

- Personal interviews.
- Tests and measurements.
- Auxiliary work team.

#### 2.3.2 Equipment and tools used in the research:

- 1 HP laptop.
- Laser discs (CD) type (imation)
- A device for measuring height and weight.
- Stopwatch.
- Distance measuring tape.
- A stick with a length of (50 cm), number (40).
- Number of indicators (15)
- whistle.

## 2.4 Field Procedures

### 2.4.1 Pre-tests

The pre-tests were conducted on the research group at 10 o'clock in the morning on Friday, October 1, 2021.

#### First Test: Agility Test

**Test Name:** Shuttle Run 4 x 10 m

**Purpose:** To measure agility

**Tools Used:** Stopwatch, whistle, two parallel lines placed 10 meters apart

**Test Specifications:** The participant stands behind the starting line. Upon hearing the start signal, they run as fast as possible to the opposite line, crossing it with both feet. They then quickly turn back and cross the starting line in the same

manner. This action is repeated, covering a total distance of 40 meters (4 x 10 meters).

**Recording:** The participant records the time it takes to complete the distance of 40 meters, starting from the moment of the starting signal until crossing the line after covering the entire distance.

### Second test: a maximum speed test (30 m)

The purpose of the test: to measure the maximum speed.

Tools used: a field of length (30 m) - a stopwatch - a whistle.

Description of the performance: The tester stands on the starting line from the stop and then starts after hearing the whistle at full speed to the finish line.

**Registration:** The performance time is calculated in seconds and recorded in the registration form.

### 2.4.2 Training Curriculum

The researchers developed a specialized training curriculum comprising a diverse range of exercises targeting sprint speed and the effectiveness of the long jump. Drawing upon their expertise in sports training and consulting Arab and international scientific training sources, they ensured the curriculum was scientifically sound and appropriate for the targeted group of athletes. The primary goal of the curriculum was to enhance approach speed and achieve success in the long jump event. The training curriculum commenced on Sunday, October 3, 2021, and continued until Thursday, November 18, 2021. It spanned a duration of six weeks, with four training sessions per week, totaling 24 sessions. The researchers adopted a progressive approach, gradually increasing the intensity of the exercises, ranging from easy to challenging. Emphasis was placed on improving the approximate running speed and movement patterns required for successful jumps, while also developing the athletes' movement capabilities, nature, and direction to optimize performance in the long jump event.

### 2.4.3 Post-tests

The researchers conducted the post-tests at ten o'clock in the morning on Saturday, 11/20/2021, and all the tests were conducted under the same conditions as the pre-tests.

### 2.4.4 Statistical means

The researchers used the statistical bag (SPSS) to process the search results statistically through the following statistical operations (Palant: 2006: 56)<sup>[3]</sup>.

## 3. Presentation, analysis and discussion of the results

For the purpose of reaching the objectives of the research and verifying the validity of the hypotheses, the researchers deliberately presented the results of the research and discussed them to find out the reality of the differences and their statistical significance.

### 3.1 Presentation and analysis of the research results in the pre and post test

In order to know the significant differences between the arithmetic mean in the pre and posttests of agility, maximum speed and achievement of the effectiveness of the long jump.

**Table 1:** Shows the arithmetic means and standard deviations of the pre and posttests of the research variables

Sig. or not	T Tabular	T calculated	Post-tests		Pre-tests		المتغيرات
			Stdev	Median	Stdev	Median	
Sig	2,57	3,96	0,398	7,51	0,401	8,22	Agility test
Sig		2,87	0,113	5,13	0,221	5,47	Maximum speed test
Sig		2,67	0,201	7,12	0,273	6,56	Achievement m/centimeter

Below the level of significance (0.05) and degrees of freedom (3)

When observing Table (1), which shows the arithmetic mean, standard deviations, the value of (T), and the level of significance for the experimental group for the pre and post test, we find that the arithmetic mean for the pre and post test agility is (8.22) and for the post test the value of its arithmetic mean is (7.51), while the standard deviation For the pre-test, its value was (0.401), while its value in the post-test was (0.398), and the calculated (T) value was (3.96), which is higher than the tabular (T) value of (2.57), so this is supported by the significance of the differences. Between the pre- and post-test in favor of the post-test, as for the variable (maximum speed), we find that the arithmetic mean of the pre-maximum speed test was (5.47) and the post-test had a mean value of (5.13), while the standard deviation of the pre-test was (0.221). As for its value in the post test, it was (0.113), and the calculated (T) value was (2.87), which is higher than the tabular (T) value of (2.57), so this is supported by the significant differences between the pre and posttest in favor of the post test.

### 3.2 Discussion of the Results

Table (1) indicates significant differences between the pre and post-test results of the sample, favoring the post-tests. This notable improvement, evident in the mean values and statistical significance, can be attributed to the effectiveness of the proposed training curriculum implemented by the researchers. The curriculum was scientifically studied and designed, incorporating specific training indicators that had a positive impact on the development of motor agility. The use of appropriate aids tailored to the abilities and capacities of the research sample, along with moderate training loads, played a vital role in enhancing motor performance in the long jump event.

Abdul-Ghani emphasizes the importance of gradually increasing the training intensity and recognizing the body's response to such changes, including the intensity of rest. By ensuring gradual adaptation, individuals can achieve progressive improvement (BB Hasan, 2022)<sup>[6]</sup>.

Furthermore, organized training, characterized by consistent and suitable physical exercises performed over a period of weeks or months, leads to an increase in an individual's skillful and physical potential. As a result, the body's systems are optimized for optimal performance during these exercises (BB Hasan, 2021)<sup>[8]</sup>.

The findings highlight the positive effects of a well-designed training curriculum, supporting the notion that systematic and targeted training can enhance both physical and skill-related capabilities, ultimately improving overall performance in the long jump event.

## 4. Conclusions and Recommendations

### 4.1 Conclusions

Based on the scientific procedures and data analysis conducted in this research, the researchers have drawn the following conclusions:

1. The utilization of auxiliary means in the exercises had a

positive and significant impact on the overall physical and skill levels of the research sample.

2. The implementation of the prescribed exercise methodology resulted in the development of kinetic agility, approach speed, and high jump performance.

### 4.2 Recommendations

Building upon the conclusions derived from this research, the researchers propose the following recommendations:

1. Incorporate the training curriculum developed in this study into the high jump curricula and training programs to enhance kinetic agility, maximum speed, and high jump performance for high jump athletes.
2. Conduct further studies exploring additional variables that were not addressed in this research.
3. Conduct similar studies targeting different age groups to assess the effectiveness of the training curriculum on various populations.

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