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## A STUDY ON EFFECT OF WEIGHT TRAINING ON STRENGTH AND ENDURANCE AMONG ATHLETES OF GULBARGA UNIVERSITY

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### ABSTRACT

*The purpose of the present study was to examine the effect of weight training on strength and endurance of athletes of Gulbarga University. Thirty male athletes aged between 18 and 25 years were selected as subjects for the study. A pre-test was conducted to measure the initial level of strength and endurance of the subjects. The subjects then underwent a structured weight training programme for a period of seven weeks. After the completion of the training programme, a post-test was conducted using the same tests to assess changes in strength and endurance. The collected data were analyzed using appropriate statistical techniques to compare pre-test and post-test scores. The results revealed a significant improvement in strength and endurance after the weight training programme. The findings of the study indicate that weight training has a positive effect on improving strength and endurance of university-level athletes. The study concludes that regular weight training can be effectively used to enhance physical fitness and performance.*

**KEYWORDS:** *weight training athletes' performance.*

## INTRODUCTION

### Role of Sports Training, Weight Training, and Athletics in Performance Enhancement

Sport plays a significant role in modern society by promoting physical fitness, social unity, and national development. It is a structured and competitive physical activity performed under standardized rules, where participation is motivated by both personal satisfaction and external rewards. Competition and goal achievement are the fundamental elements of sport.

Athletics, one of the oldest and most fundamental forms of sport, includes track and field events such as running, jumping, and throwing. It forms the foundation of many other sports because it develops essential motor abilities like speed, strength, endurance, agility, and coordination. Success in athletics depends greatly on systematic and scientific training that enhances these physical capacities.

Sports training is a long-term and planned process designed to improve physical, technical, tactical, and psychological aspects of an athlete. It involves progressive overload, regular assessment, and structured training cycles to achieve peak performance. In athletics, training programs are carefully designed according to the specific event—sprinters focus on speed and explosive power, middle- and long-distance runners emphasize endurance, while jumpers and throwers require strength, coordination, and power development.

Weight training is an essential component of modern athletic preparation. It uses resistance such as free weights, machines, or body weight to improve muscular strength, power, and endurance. Explosive resistance exercises and plyometric training are particularly beneficial for athletes in sprinting, jumping, and throwing events. Regular weight training strengthens muscles, bones, and connective tissues, enhances neuromuscular coordination, and reduces the risk of injury.

In conclusion, sports training is a comprehensive scientific process that integrates physical conditioning, skill development, and psychological preparation. Athletics serves as the foundation for motor development, while weight training significantly contributes to strength and power enhancement. Together, they play a crucial role in achieving high levels of athletic performance

### **Motor Fitness**

In the twenty first century games and sports have crossed many milestones in the International and National competitions. Scientific investigations into performance of sportsperson have been playing an increasingly important role in order to attain excellence of performance in different sports

Sports performance is measured by the motor fitness components like strength, speed, agility and endurance. These components are performance oriented and are dependent upon functioning of different systems of the body in an integral manner in which sports participation is measured. Sport performance is a complex mixture of emotional factors, training techniques and biomechanical function. Performance in an athletic context has a popular connotation of representing the pursuit of excellence, where an athlete measures his/her performance as a progression towards excellence or achievement in respective field. There is an understanding in sports that athletes interested in performance tends to the competitive or elite level; athletes interested in simple participation, for broader purposes such as fitness or weight control, are most often recreational athletes who do not set specific performance goals

Motor ability is now-a-days considered as one of the most important health issues in childhood. Several countries have been promoting physical fitness improvement among young people in different ways. In many circumstances, schools have been considered the best setting in which children with low fitness levels can be identified and a healthy lifestyle can be promoted (Ortega et al., 2008).

The motor abilities are considered one of the important factors affecting all the games and sporting events, and the availability of motor abilities for the Badminton players sufficiently enable him to achieve better performance and high achievement, the importance of motor abilities is not confined only within the field of sports, but it also is important for everyone in the community in general.

Many nations of the world began to harness all the possibilities and scientific capacity in order to reach to the advanced levels in different sports, the continuous development in the collective and individual sporting games depends on the way in and how to setup and configure the players in all respects and motor abilities (physical skills as well as tactical, psychological and educational) for success and access to high levels.

#### **REVIEW OF RELATED LITERATURE:** Effect of Weight Training on Athletes

**Makaruk and colleagues (2024)** conducted a systematic review and meta-analysis examining the effects of resistance training on sport-specific performance in elite athletes. The study analyzed multiple controlled trials and reported significant improvements in muscular strength, power output, sprint performance, and jumping ability. The authors concluded that resistance training, when integrated with sport-specific practice, produces moderate to large performance benefits across different competitive levels.

**Grgic et al. (2022)** reviewed the impact of resistance training intensity on athletic performance. Their findings indicated that both high-load and moderate-load resistance training significantly improved maximal strength and power in trained athletes. The study emphasized that progressive overload and individualized programming are critical for optimizing performance outcomes.

**Cormie and colleagues (2023)** investigated strength-power training adaptations in athletes. The researchers reported that combining traditional resistance training with explosive movements (e.g., Olympic lifts and plyometrics) significantly improved rate of force development and power output. These adaptations were particularly beneficial for sprinters, jumpers, and team-sport athletes.

**Moran et al. (2024)** conducted a meta-analysis on resistance training in youth athletes. The study confirmed that properly supervised weight training significantly improves muscular strength, power, and injury resistance in adolescent athletes without negative effects on growth or maturation.

## RESEARCH METHODOLOGY

### Statement of the Problem

The research study entitled: “A Study on the Effect of Weight Training on Strength and Endurance of Athletes of Gulbarga University.”

### Significance of the Study

The present study aimed to examine the effect of a structured weight training program on selected motor fitness components, namely strength and endurance, among athletes of Gulbarga University. Physical fitness components such as strength and endurance play a crucial role in enhancing athletic performance across different sports disciplines.

This study is significant as it attempts to scientifically evaluate whether systematic weight training over a specified period can produce measurable improvements in these components. The findings of the study may help coaches, physical education teachers, and trainers in designing effective strength and conditioning programs for university-level athletes.

### Objectives of the Study

- To measure the strength ability of athletes of Gulbarga University.
- To measure the endurance ability of athletes of Gulbarga University.
- To conduct pre-test and post-test motor fitness assessments before and after the seven-week weight training program.
- To determine the effect of weight training on selected motor fitness components (strength and endurance).

### Hypotheses of the Study

- There would be a significant effect of weight training on strength among athletes of Gulbarga University.
- There would be a significant effect of weight training on endurance among athletes of Gulbarga University.

### Variables of the Study

#### Independent Variable

- Weight Training (Seven-week training program)

#### Dependent Variables

- Strength
- Endurance

### Sample of the Study

The researcher randomly selected fifty (50) athletes from different affiliated colleges of Gulbarga University. The selected participants were male athletes actively participating in university-level sports activities. A pre-test was conducted to assess strength and endurance. The subjects then underwent a structured weight training program for

seven weeks. After completion of the training period, a post-test was conducted to measure changes in the selected motor fitness components.

**Tools Used for Data Collection**

- **Strength** was measured using the *Pull-Ups Test*.
- **Endurance** was measured using the *12-Minute Walk and Run Test (Cooper Test)*.

**Training Programme**

The experimental group underwent a structured weight training program for seven weeks. The training included exercises targeting major muscle groups, performed three to four days per week, following principles of progressive overload and proper recovery.

**Statistical Procedures Used**

The collected data were analyzed using the following statistical techniques:

- Mean
- Standard Deviation
- Paired ‘t’ Test, these statistical tools were used to determine whether there was a significant difference between pre-test and post-test scores of strengths and endurance.

**ANALYSIS AND INTERPRETATION OF DATA**

**THE TABLE NO 1 SHOWING THE EFFECT OF WEIGHT TRAINING ON THE STRENGTH ABILITY OF ATHLETES (N-50)**

Test	Variable	Mean	SD	T Value
Pre test	Strength	11.26	3.442	5.238**
Post test	(Pull up test)	19.26	5.222	

Significant at 0.05 levels

The table showing the effect of weight training on the strength ability among the athletes of Gulbarga University Karnataka. the pre-test before the weight training the mean score is 11.26, the standard deviation is 3.442, the post-test after the weight training session mean score is 19.26, the standard deviation is 5.222, the statistically calculated t value is 5.238\*\* which is significant at 0.05 levels of significance.

The research study showing that the weight training has the positive effect on the strength ability among the athletes of research study. the weight training is most effective way to develop the strength among the athletes of the Gulbarga University.

**THE TABLE NO 2 SHOWING THE EFFECT OF WEIGHT TRAINING ON THE ENDURANCE ABILITY OF ATHLETES (N-50)**

Test	Variable	Mean	SD	T Value
Pre test	Endurance (Cooper test)	1880.70	233.53	3.895**
Post test		2106.11	272.14	

**Significant at 0.05 levels**

The table showing the effect of weight training on the Endurance ability among the Athletes of Gulbarga University. the pre-test before the weight training the mean score is 1877.70 the standard deviation is 233.53, the post-test after the weight training session mean score is 2106.11, the standard deviation is 272.14, the statistically calculated t value is 3.895\*\* which is significant at 0.05 levels of significance.

The research study showing that the weight training has the positive effect on the Endurance ability among the athletes of research study. the weight training is most effective way to develop the Endurance among the athletes of Gulbarga University.

## SUMMARY AND CONCLUSION

The present study was conducted to examine the effect of weight training on selected motor fitness components, namely strength and endurance, among athletes. In modern sports, scientific training methods play a vital role in improving athletic performance. Weight training has become an essential part of conditioning programs as it enhances muscular strength, endurance, and overall physical fitness.

In this study, fifty athletes were selected and subjected to a seven-week weight training program. Pre-tests were conducted to measure strength and endurance before the training period, and post-tests were conducted after completion of the training program. The collected data were analyzed using appropriate statistical methods.

The results of the study revealed that weight training had a significant influence on the selected motor fitness components. Both strength and endurance showed noticeable improvement after the training period. The findings clearly indicate that systematic and structured weight training contributes positively to the development of motor fitness among athletes of Gulbarga University.

## CONCLUSION

**Based on the analysis of data, the following conclusions were drawn:**

- ❖ There was a significant difference between the pre-test and post-test mean scores of strengths among the athletes.
- ❖ Weight training had a positive effect on the strength ability of the athletes.
- ❖ There was a significant positive effect of weight training on the endurance ability of the athletes.

- ❖ The significant improvement observed in the post-test scores indicates that weight training is effective in enhancing motor fitness components in Athletes of Gulbarga University.

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